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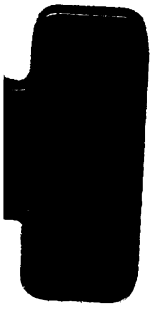

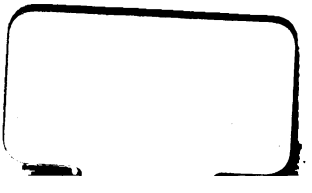

AN

INQUIRY

INTO THE

Laws of different Epidemic Diseases,

WITH THE

VIEW TO DETERMINE THE MEANS OF PRESERVING INDIVIDUALS AND COMMUNITIES FROM EACH,

And also to ascertain the Probability of

EXTERMINATING THE SMALL-POX.

BY JOSEPH ADAMS, M. D. F. L. S.

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PHYSICIAN TO THE SMALL-POX AND INOCULATION HOSPITALS AND TO THE NEW FINSBURY OR CENTRAL DISPENSARY.

Ει μεν περι καινου τινος πραγματος προτιθετο ω ανδρες Αθηναιοι λεγειν, επισχων αν εως οι πλειστοι των ειωθοτων γνωμην αποφηναντο. ει μεν ηρεσκε τι μοι των απο τουτων ρηθεντων, ησυχιαν αν ηγον· ει δε μη, τοτ' αν αυτος επειρωμην α γιγνωσκω λεγειν. επειδη δη περι ων πολλακις εiρηκασιν αυτοι προτερον, συμβαινει και νυν σκοπειν, ηγουμαι και πρωτος αναστας, εικοτως αν συγγνωμης τυγχανειν.

Demosth.

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1809.

20. a. 42.

TO

WILLIAM SMITH, Esq. M. P.

F. R. S.

And a GOVERNOR of the SMALL-POX HOSPITAL,

AS a Member of that legislative body in which only these important Questions can be duly discussed, as a Governor of that Institution which has furnished some of the practical Remarks contained in these sheets, but, most of all, in grateful recollection of the liberality and politeness experienced on so many occasions, this Work is inscribed by

His faithful

And obliged

Humble Servant,

THE AUTHOR.

New Bridge Street, July 1, 1809.

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CORRIGENDA.

Page 4, Line 6, after *to* add *the*.
28, 18, read *Plebis Veteris et Libeti*.
106, 23, *for* Benton *read* Burton.
123, 8, *for* Gilders *read* Guelders.

INTRODUCTION.

IT always carries a ſuſpicious air when a writer addreſſes the public on a ſubject connected with his own profeſſion. If he can catch their feelings by the relation of tales which ſeem to ſhock humanity, any weakneſs in argument, or even doubtfulneſs of facts, is too eaſily overlooked. The reverſe of wrong, it is ſuppoſed, muſt be right; and nothing is talked of but getting rid of an evil, without reflecting whether we are producing a greater.

There is in England a very large order of the community, whoſe paternal or acquired wealth gives them leiſure, whoſe minds are formed to a love of order, whoſe reading is extenſive and well choſen, and who, by education or conſtitution, having reſiſted the temptations of ambition and power, are anxious only to promote the happineſs of the world.

Profeſſional writers, who addreſs this claſs of readers, are careful to render their ſtyle eaſy, their arguments plauſible; to keep every difficulty in the back ground, and bring forward ſome ſtriking figures, the impreſſion of which may be ſufficiently powerful to remain, and be produced as often as the ſubject occurs.

It is eaſy to ſee where the advantage muſt be, when a man, of however moderate abilities, undertakes to explain any of the principles of his art to thoſe whoſe purſuits have been different. If he is read, his ſucceſs muſt be certain; for his readers will not be among the profeſſion, who know all, and more than he has written, and who, if applied to for explanation, muſt either enter too largely on the ſubject for common converſation, or diſmiſs it with an anſwer too ſhort to ſatisfy the inquirer. Hence it happens, that thoſe who addreſs the public on profeſſional ſubjects, are always viewed with ſome ſuſpicion by their brethren.

This, it is hoped, will be admitted as an apology, for having ſo long delayed to offer in print my opinion on a ſubject ſo immediately connected with my own engagements, and on which the public has a right to demand the reſult of my inquiries.

Another reaſon, was the difficulty of finding any thing to oppoſe. To defend ſmall-pox inoculation, is only to repeat all that was ſaid fifty years ago, and has been repeated ever ſince, till the laſt ten years. To admit that vaccination is a moſt important improvement, is equally ſuperfluous. To ſay that this ſecond improvement ought not by force to ſuperſede the firſt, would only lead to thoſe arguments by which ſmall-pox inoculation was firſt defended; and to anſwer clamour and invective, requires a mind organized like thoſe who uſe them.

During

During this uncertainty, it was with particular ſatisfaction that I peruſed a pamphlet* written with the beſt intentions, and with no leſs perſpicuity and order. The value of the work was much heightened by the general view which it contains of contagion and the quarantine laws. It has often occurred to me, that whilſt the public mind is ſo much engaged on the ſubject of ſmall-pox, it might be poſſible to lead them to ſome rational and well directed inquiries concerning epidemics in general; a ſubject which has either been wholly overlooked, or treated without order and without diſcrimination. The learned author has conducted his inquiry, I doubt not, with perfect correctneſs, as far as it is connected with his own profeſſional purſuits. On the medical part he has touched with ſuch caution, as evidently ſhows his wiſh that the Faculty ſhould enter upon it more minutely.

The work commences with a doubt, whether it would be conſiſtent with Britiſh liberty, to reſtrain ſmall-pox inoculation. To me theſe doubts have always appeared a matter of ſurpriſe. Had the queſtion been concerning the poſſibility of inforcing a law to reſtrain inoculation, it might admit of a doubt, whether, like many others, it would not operate againſt the conſcientious, without reſtraining the unprincipled or unfeeling; admitting, however, not only the power of the legislature to make, but alſo to

* Letter to the Right Honourable Spencer Percival. — Hatchard, 1807.

to enforce ſuch a law, ſhould we not reflect before we condemn the conduct of the laſt half century? Inſtead of attending to this, for which we have authentic records without number, we are referred to examples, the nature or effects of which we cannot now aſcertain, and are even in doubts as to diſeaſes, for which the laws were enacted.

When we are told that the leproſy and plague are exterminated from among us, it becomes, at leaſt, to inquire what theſe diſeaſes are? Whether they are exterminated? And, if ſo, by what means? When theſe are aſcertained, let us examine carefully why thoſe prudent anceſtors, who were ſo ſucceſsful in exterminating theſe diſeaſes, never attempted to apply the ſame means to the ſmall-pox; or, if that is thought unneceſſary, let us at leaſt examine whether the laws of the diſeaſes exterminated, appear to have been ſimilar to thoſe which are ſtill ſuffered to remain.

The learned author ſhows us how neceſſary it is to be well informed on theſe ſubjects, by the errors into which he has inadvertently fallen. Leproſy, he tells us, is the elephantiaſis of Ceylon; and the ſweating ſickneſs is the ſame as the plague. If he is right in theſe conjectures, there could be no difficulty in exterminating both. Elephantiaſis is unknown in any climate north of Rome, and does not appear contagious even in thoſe countries which give it birth. Sweating ſickneſs is pronounced by every writer who can be depended on, not to have been contagious.

The worthy baronet expreſſes his ſurpriſe, that before the year 1604, no legislative means had been uſed to prevent the introduction of the plague. This will appear leſs remarkable, when we reflect, that from the dreadful plague 1349 to 1603, there had been no very ſevere viſitation in London. The plagues of the intermediate years are ill defined, their fatality inconſiderable, and probably confined to the poor. The ſtatute of James was made immediately after a plague which had deſtroyed more than 30,000 perſons in and about London; the ſubſequent ſtatutes were formed under different alarms. When the laſt viſitation came upon the town in the year 1665, all the reſtrictions required by modern writers were called forth, and there is no reaſon to ſuppoſe they were not attended to. If it is too much to ſay that all theſe means increaſed the evil, it muſt at leaſt be admitted that the number of deaths increaſed from the time that the orders were enforced.

In the month of July was iſſued the tremendous ordinance, that a red croſs ſhould be affixed to every infected houſe, with the inſcription, "THE LORD HAVE MERCY UPON US." Notwithſtanding this, "and though the people deſerted the town, as if, to uſe the language of Dr. Hodges, London had gone out of itſelf;" yet, "in the month of Auguſt and September, (he adds) the contagion changed its ſlow progreſs. "Though in the month of September, (ſays Maitland) death rode triumphant, and part of October proved equally fatal; yet during

during the two ſucceeding months, the town was repeopled with as much rapidity as it had been deſerted; "and many (ſays Hodges) went into beds where perſons had died, even before they were cold or cleaned from the ſtench of the diſeaſe." Admitting that this picture may be highly charged, it cannot be diſputed that the mortality increaſed in proportion as the reſtrictions were enforced, and ſubſided without any human contrivance. This is enough to ſhow how little we are indebted to the interference of the legislature for the ceſſation of that dreadful malady.

"A period, (continues the learned judge) of 132 years has now elapſed ſince the actual appearance of the plague in this nation; but the continual intercourſe with thoſe countries whence it originated, and where it ſtill exerciſes all its powers of devaſtation, has compelled the legislature of Britain to watch with ceaſeleſs vigilance over the health of the people, and by all practicable means to prevent the introduction of an enemy, of which even the memory is ſo formidable.

"No fewer than eight ſeveral acts of parliament have, from time to time, been framed to enforce and regulate the practice of quarantine."

It would be abſurd to queſtion for a moment the intentions of the legislature, in framing their quarantine laws. But let thoſe who are beſt acquainted with commercial concerns, decide whether we owe our exemption to any of theſe laws, or to the conſolidating act of his preſent Majeſty.

Nothing,

Nothing, however, can be more reaſonable than for a lawyer to inquire, by what means leproſy ſeems gradually to have diſappeared, or to have loſt its terrors amongſt us; nor why we ſhould ſtill ſubmit to the horrors of ſmall-pox. The motive is laudable, and large allowances ſhould be made for the habit of judging by precedent, which is too readily transferred from one courſe of ſtudies to another. And this is a further argument, if any were neceſſary, that medical men ſhould on ſuch occaſions, endeavour to explain themſelves to the public; or at leaſt, ſhow the manner in which ſuch inquiries ſhould be conducted.

One of the earlieſt diviſions of diſeaſe, is into chronic and acute. Even this has been unattended to in the preſent inquiry, if it can be called ſuch. Another, which brings us nearer to our purpoſe, is into endemic and epidemic. By the firſt, we underſtand diſeaſes which are known only in certain places, often only in certain latitudes, where they are found in every ſeaſon. By the ſecond, thoſe which occur only at certain ſeaſons, or other changes in the atmoſphere, of the nature of which we are unacquainted, or from contagion. The firſt order, for the moſt part, are chronic; the ſecond, acute diſeaſes.

Among the former may be reckoned almoſt all the tribe of diſeaſes, which were once included under the general term of leproſy. At preſent, a truly accurate writer confines it to the *lepra græcorum*, a diſeaſe common in moſt climates; but if we may

may truſt to Dr. Cullen, unknown in high northern latitudes. The elephantiaſis of Aretæus, too common in all the ſouthern regions, is happily now, and I believe always was, unknown in the north. Celſus ſpeaks of even as far ſouth as Italy, as *morbus pene ignotus*; and it was evidently unknown to the Salernian ſchool. The Barbadoes leg, which from its reſemblance to an elephant's foot, has been confounded with elephantiaſis, is ſcarcely known but in tropical regions, and in them only in particular places. Scrofula, and the moſt common kind of cancer deſcribed in Great Britain, are almoſt confined to colder and more uncertain climates. The ſwelled throat is found in many, but chiefly mountainous countries. In theſe, however, its range is circumſcribed; and ſolitary inſtances are to be met with in moſt other parts.

Theſe diſeaſes are mentioned, becauſe though they ſeem all to depend on local circumſtances, or to be truly endemic, yet ſome of them are conſidered as contagious. There is reaſon to believe none of them are; and it is certain that none of them are communicated with that readineſs, which is univerſally attributed to ſmall-pox. Their progreſs is alſo ſlow, which enables us to deliberate when they appear. Epidemics, on the contrary, are acute diſeaſes, and run through their ſtages with ſuch rapidity, that it is abſolutely neceſſary we ſhould be prepared to relieve the diſtreſſed; and if poſſible, to preſerve the reſt of the community. This can only be done by previous and accurate

inquiries

inquiries concerning all that is known of the laws by which they are governed in their invaſion, in the manner in which they ſpread, and the cauſes from which they ceaſe.

CHAP. I.

ON EPIDEMICS, THE CONTAGIOUS PROPERTY OF WHICH IS NOT ASCERTAINED.

CONTAGION is a term ſo frequently brought into uſe, and diſcuſſed with ſo much eaſe, that one might think its laws were to be aſcertained with the ſame certainty as the ſolution of a mathematical problem. But in this, as in moſt other queſtions, thoſe who are the beſt informed are ſometimes the moſt in doubt. It will ſurprize many of my readers, to hear that Sydenham conſidered ſmall-pox as a diſeaſe ariſing from certain unknown properties in the atmoſphere, *unconnected with contagion*; and Cleghorn, who is conſidered among our ſtandard authors, aſſures us, that the ague is not leſs contagious than the ſmall-pox; for, continues he, thoſe who are moſt among the ſick, are ſooneſt affected. Nor are theſe difficulties confined to our forefathers. Among the ableſt practitioners of the preſent day it is diſputed, whether the yellow fever of the Weſt Indies and America, the influenza, and even the plague, are contagious.

Before we attempt to account for this contrariety in the opinions of honeſt and enlightened men, on a ſubject of all others the moſt intereſting in this world, it is abſolutely neceſſary that we ſhould attend to the ſources and laws of that vitiated atmoſphere,

moſphere, which is known by its effects in producing the camp, the jail, the hoſpital, or ſhip fever.

Wherever men are congregated in numbers, if none of them are diſeaſed, the only conſequence appears to be a temporary inconvenience ariſing to each, from not having that ſupply of common air, which is as neceſſary for the lungs as food for the ſtomach. But if any illneſs exiſts, or as ſoon as illneſs is produced by their unnatural ſituation, a new kind of air is generated, which produces a fever called uſually by the name of the place where the event has occurred, whether a camp, a ſhip, or poor houſe, jail, or hoſpital. Though this kind of air affects all who breathe it, yet ſuch as are ſuddenly expoſed, are influenced by it in a manner different from thoſe by whom it has been gradually vitiated. To the latter it often proves a kind proviſion, to relieve them from a ſeverer or more protracted miſery. Under the name of fever an univerſal torpor is produced, a diſinclination for food, an indifference to all external objects; and if no change takes place, the patient ſinks peaceable into the arms of death.

But this is the caſe only with thoſe children of poverty, who in times of diſtreſs cling cloſer to each other, to preſerve and partake of their mutual warmth, the hearth no longer blazing, and each returning meal becoming more ſcanty or precarious!

When the air becomes more ſuddenly vitiated,

or when men in high health are ſuddenly expoſed to this infectious atmoſphere, the effects are proportionably violent. Such is often the caſe in an army, when the difficulties of a campaign, or the numbers wounded after an engagement, require a ſudden and indiſcriminate accumulation of the ſick and wounded. Aſſalani informs us, that the Pyrenæan army, in the ſecond year of the Republic, loſt in the ſpace of four months, ten thouſand men, comprehending in the number, almoſt all the medical and other officers employed about the hoſpitals. The effects of expoſure to ſuch air, ſeems proportioned to the quantity of infectious matter contained, and the ſuddenneſs with which it is inhaled.

The following is part of Dr. Jackſon's deſcription of thoſe who were ſuddenly expoſed to this effluvia by waſhing the foul linen of the ſick. "The perſons (ſays he) employed in waſhing the ſhirts and blankets, notwithſtanding every precaution was taken, were every one attacked with fever." "In thoſe inſtances of recent diſeaſe, the attack was ſudden; ſtupor, like intoxication or apoplexy, gave the firſt notice of approach." "Under theſe appearances death took place in thirty-ſix hours or leſs." The black aſſizes, as they are called, give the moſt ſtriking inſtances of this ſtronger ſuſceptibility, in proportion as the ſubject is ſuddenly expoſed to the concentrated effluvia. On the 11th of May, 1750, the priſoners at the Old Bailey, were ſufficiently in health to attend their trial; yet

yet from the effluvia they brought with them, on the 13th died one magiſtrate, on the 14th the under ſheriff, on the 17th one judge, and on the 19th and 20th each, nine different perſons of the court.

By this difference between the effect produced on the priſoners, and on the court, it is evident that the character of the fever varies: and it ſeems hardly doubtful from this, and other events, that this variety depends on the ſuddenneſs with which a ſubject is firſt expoſed to ſuch an atmoſphere. There is another circumſtance, to which I muſt particularly call the attention of the reader. The priſoners, we have ſeen, were well enough to attend their trial. The gentlemen of the court died of the fever; we might therefore ſuppoſe, by what we know of certain contagions, that if the priſoners in their ſtate were infectious, the gentlemen of the court muſt have been much more ſo, as it is well known that a perſon who dies of ſmall-pox, has more contagion about him than one who has the diſeaſe more mildly. But there is every reaſon to believe, that thoſe who died of the jail fever, though attended at their different houſes by their families, proved infectious to none. This appears probable, not only becauſe no mention is made of the diſeaſe ſpreading any further, but becauſe we are expreſsly informed, that when three hundred perſons who were in court at a black aſſizes in Oxford, ſuffered from a ſimilar cauſe, "the diſeaſe went no further."

Theſe facts are ſo ſtriking, that probably the contagious

tagious property of fever from ſuch an atmoſphere would never have been ſuſpected, if all infected by it had been circumſtanced during their illneſs, like the individuals who compoſed the court. But if an inhabitant of a crowded tenement ſhould be affected in this manner, the probability is, that all the atmoſphere around him will become infectious; not entirely from the nature of his fever, but becauſe, as we have before ſeen, ſickneſs of any kind, where numbers are accumulated without proper ventilation, will generate that atmoſphere which excites hoſpital, camp, priſon, or poor-houſe fever. For this reaſon, I ſhall avoid as much as poſſible, confounding the fever with the cauſe that excites it, which laſt I ſhall diſtinguiſh by the term of infectious atmoſphere.

CHAP. II.

OF THE MANNER IN WHICH DIFFERENT EPIDEMICS SUPERSEDE EACH OTHER.

WHAT has been ſaid, is ſufficient to explain the general effect of that infectious atmoſphere, which ſurrounds an accumulated number of ſick. I muſt now call the reader's attention to a well known law, particularly inforced by thoſe who have paid the moſt attention to epidemics, namely, that in proportion to the force of their invaſion reſpectively, they ſuperſede each other, and all other diſeaſes. Thucydides remarks of the plague at Athens, that at the time of its invaſion, the city was generally healthy, and that the few exiſting diſeaſes were ſoon converted into the reigning epidemic. The following is Dr. Hodges's account of the beginning and ceſſation of the laſt plague in London. "The peſtilence, ſays he, did not however ſtop for want of ſubjects to act upon, (as was then commonly rumoured); but from the nature of the diſtemper, its decreaſe was like its beginning, moderate; nor is it leſs to be wondered at, that as at its riſe, all other diſtempers went into that, ſo now, at its declension, *that* degenerated into others."

Sydenham's writings abound with ſimilar inſtances of the changes produced in diſeaſes, according to the conſtitution of the atmoſphere. They were probably

probably more ſtriking in his days, when the town was ill-built, ill-drained, ill-ſupplied with water, and the neighbouring country to the very ſuburbs ſo badly cleared, as to ſubject the inhabitants to regular returns of agues in ſpring and autumn. In this reſpect, it reſembled a camp pitched in an uncleared ſpot, which was the ſeat of Dr. Cleghorn's practice. Thus circumſtanced, epidemics would ſucceed with ſuch rapidity, and ſo often ſuperſede each other, that even Sydenham might confound the invaſion and progreſs of ſmall-pox with that of ague: and Cleghorn might eaſily ſuppoſe ague contagious, becauſe thoſe who attended the ſick would be ſeized with hoſpital fever, which would almoſt inſtantly be ſuperſeded by ague, as the reigning epidemic.

The ſame error may ariſe from a different cauſe. If a hoſpital or building of any kind is ſituated near the ſource of ague, many of the inhabitants will be ſeized with the diſeaſe; but from various cauſes ſome may fall ill earlier than others. Hence thoſe who are laſt ſeized, may ſeem to be infected by the firſt; and this uncertainty can only be removed by the migration of ſome individuals to a place free from the miasma of ague. If theſe go with the diſeaſe upon them, or if the diſeaſe appears upon them after their removal thither, and in this ſtate they infect none of the reſident inhabitants, we cannot call the diſeaſe contagious, but muſt aſcribe its ſpreading in the place of its origin to the local cauſe which affects ſo many in the ſame way.

All

All this has ſatisfied the inhabitants of moſt parts of the world, that ague is not contagious; the ſame opinion is gradually gaining ground, concerning the yellow fever of America. That diſeaſe is known only at certain ſeaſons, and its occurrence with any violence, even in thoſe ſeaſons, is uncertain. This is ſo well underſtood, that ſuch as maintained its contagious property, and that it was introduced from the Weſt Indies, never required quarantine in any but the ſummer or autumnal months; and it is univerſally admitted, that emigrants to healthy towns, who carry the diſeaſe with them, or are ſeized with it in ſuch towns, or die of it after their arrival never become contagious to the inhabitants.

The ſame law is not leſs maintained in the plague. Though that diſeaſe is among us conſidered contagious, yet in thoſe places where it is beſt known, the terror of contagion ſcarcely exiſts. During its prevalence, thoſe who have fled from the ſource of the evil, ſo late as to carry with them the diſpoſition to the diſeaſe, and have been afterwards ſeized with it in healthy diſtricts, are found not to have been contagious to the inhabitants among whom they have ſojourned.

All this is enough to ſhow, that there is a degree of uncertainty attending the contagious property of yellow fever and plague. If both have excited reaſonable ſuſpicions of contagion among the beſt informed men, we have ſeen the ſame ſuſpicion has been attached to ague; and the contagi-

ous property of influenza is with ſome, a queſtion ſtill undecided. Yet it is admitted by all that yellow fever and plague are only known in certain climates, and at certain ſeaſons; that ague is only known at certain ſeaſons, and in certain diſtricts, and influenza affects ſo many at the ſame time on its firſt invaſion, and diſappears ſo ſuddenly as to convince us it may be taken from the atmoſphere, and ceaſes as that changes.

Whatever may be the reſult of future inveſtigations, at preſent we muſt impute the origin and ſpreading of theſe diſeaſes to ſomething beſides a communication between the ſick and the healthy, which is the only determined character of contagion. If numbers are ſeized in the ſame diſtrict, it may be becauſe all are expoſed to the ſame atmoſphere; and if thoſe who attend on the ſick are ſooner affected than others, they are probably firſt affected with hoſpital fever, which ſoon aſſumes the character of the reigning epidemic. It muſt then at leaſt be admitted, that yellow fever, plague, ague and influenza, whether contagious or not, are all governed in their manner of ſpreading by certain properties of, and ceaſe as a change is induced in, the *external* atmoſphere.

Hoſpital or camp fever it is true is the offſpring of an *artificial* atmoſphere, and may be excited at any ſeaſon, and in any climate. This atmoſphere may alſo be conveyed by wool, cotton, or any ſubſtance capable of confining air; in which caſe it will retain its infectious property. In this laſt inſtance, it approaches

proaches nearer to the contagions; but nothing can be called a contagion, unleſs the perſon affected by it can induce a ſimilar diſeaſe in others, without regard to ſeaſon, climate, or any local circumſtances. Now we know by the black aſſizes, and many other inſtances, that a perſon infected by this atmoſphere does not, unleſs he remains in a confined atmoſphere, induce a ſimilar diſeaſe in others, conſequently, this fever has not all the properties of a true contagion.

CHAP. III.

OF CONTAGIONS.

FROM what has been ſaid, it follows, that tho' moſt epidemic diſeaſes are uſually conſidered as contagious, yet we are not juſtified in calling a diſeaſe contagious, unleſs a perſon under it, tranſlated among healthy people, induces a ſimilar diſeaſe in ſome of them, and they again in others.

Now we have ſeen, and it will be hereafter further illuſtrated, that this is not aſcertained in ague, yellow fever, or plague; and though hoſpital or jail fever may appear to be contagious, becauſe thoſe who are expoſed to the atmoſphere of ſuch places are affected, yet unleſs they remain in ſuch an atmoſphere, or are in crowded and ill-ventilated rooms during their fever, they are not found contagious to others.

Another circumſtance ſeems neceſſary to aſcertain a contagion, namely, that it can only be excited by a cauſe exactly ſimilar to its effect. Agues we know are excited by exhalations from the earth at particular ſeaſons. The yellow fever is thought by ſome to be excited by ſimilar cauſes; and it is admitted by all, that it only occurs at certain ſeaſons and in certain climates. The ſame has been ſaid of plague. Influenza is known to depend on a particular conſtitution of the atmoſphere. Hoſpital fe-

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ver is excited by the accumulation of ſick, whatever the nature of their complaints may be.

In all theſe reſpects, they differ from certain diſeaſes univerſally admitted to be contagious. The moſt remarkable of theſe are ſmall-pox, meaſles, and ſcarlet fever. Theſe can only be excited by a cauſe ſimilar to the effect. They may not only be conveyed at any ſeaſon, climate, or temperature, but under all theſe circumſtances, every perſon affected with either is contagious. It is highly important to mark this difference, becauſe in thoſe epidemics which depend on ſeaſon, climate, or conſtitution of the atmoſphere, we may look with certainty to their termination, and even hoſpital fever may be exterminated by free ventilation.

But none of theſe prevents the ſpreading of a true contagion. In all climates and ſeaſons, a man under ſmall-pox, meaſles, or ſcarlet fever, may infect another with the ſame diſeaſe; and though the influence of ſuch a power may be arreſted for a time by the prevalence of other epidemics, yet this effect is neither general nor ſufficiently uniform to be reduced to any laws. In one word, there is no climate, no ſeaſon, no temperature, in which theſe diſeaſes have not been epidemic; and that very purity of the air which inſtantly puts a ſtop to hoſpital fever, will, perhaps, be found the fitteſt to convey contagions.

All the contagions above mentioned, may be conveyed by the air paſſing from a diſeaſed to a ſound perſon, or paſſing from a ſubſtance imbued with air from a diſeaſed ſubject; nor have we as yet

aſcertained

aſcertained how much this effluvium may be diffuſed in common air, without loſing its contagious property. Hitherto we know of only one boundary to contagions when they become epidemic; namely, that no one is ſubject to their effect more than once during life.

It has been ſaid that the ancients were unacquainted with contagions, and it is certain that the phyſicians before the Arabians, make no mention of epidemics, excepting ſuch as ariſe from places, ſeaſons, or conſtitutions of the air. It is, however, eaſy to detect the hoſpital or poor-houſe fever from their philoſophers,* the camp fever from their hiſtorians,† and if not the yellow fever, at leaſt the fever of new ſettlements from their poets.‡ But that the true contagions were unknown, is certain, becauſe no mention is any where made by any writer, of a diſeaſe which would occur only once during life. When it was found during the celebrated peſtilence of Athens, that no one was ſeriously attacked a ſecond time, the citizens were ſo much aſtoniſhed, that many of the convaleſcents promiſed themſelves a perpetual ſecurity from all future diſeaſe.

It is not now to be aſcertained what was the origin of any of theſe contagions; but the exemption of thoſe countries which are ſeparated by diſtant ſeas from frequent or ready communication with others, is ſufficient to prove, that no means of exciting them are known but by the diſeaſe itſelf.

Whatever

* Plinii Secundi Epist. Lib. viii. Epist. xvi.

† Livy, Lib. xxv. ‡ Virgilii Lib. iii. Ovid Lib. vii.

Whatever may have been the origin of contagions, it is certain that from the time ſince diſeaſes have been regiſtered with any accuracy, wherever the mortality has leſſened from the other epidemics, it has increaſed from the contagions. The plague has been for a century and a half unknown among us. Agues, which Sydenham conſidered among the epidemics of London, are no longer an object of dread; and we ſhall ſee that the hoſpital and poor-houſe fever is conſiderably leſs prevalent or fatal.

The following average is taken from the reſearches of Dr. Heberden, on the bills of mortality in London, during the laſt century.

	Beginning.	Middle.	End.
Colic, flux, and gripes	1100	135	20
Fever	3000	3000	2000
Small-pox	1600	1600	2000

The firſt article is the diſeaſe of unſheltered accumulation or diſtreſs, and the numbers have leſſened from 1100 to 20. The ſecond we have ſeen is always epidemic under circumſtances of poverty and diſtreſs. It appears to have leſſened only a third; but the diminution will be much greater if we reflect that, in our Bills of Mortality, *ſcarlet fever* is always included in this article. All the caſes of ſcarlet fever ſhould therefore be deducted from fever and added to the contagions.

Mean while the increaſe of ſmall-pox is in the proportion of one in five. Dr. Heberden eſtimates the increaſe of meaſles between the firſt and laſt

laſt fifty years of the laſt century, as from 31.4 in the thouſand to 51.3, or about 2 in 5. During the preſent century, the numbers have increaſed prodigiously. In the year 1808 they exceeded the combined numbers of the five laſt years of the preceding century.

Scarlet fever, ſometimes called the ulcerated throat of Dr. Fothergill, is too little diſcriminated in our bills of mortality to enable us to form any certain average by them. If, however, we attend to the more accurate accounts of phyſicians, we ſhall ſee ſufficient proofs of increaſed mortality from that contagion. Morton, who firſt mentions it in England, confounds it with meaſles. The more accurate Sydenham, though he avoids this error, never ſpeaks of ſcarlet fever as formidable in London, nor ſeems to think it neceſſary to mark any of its varieties. Dr. Fothergill firſt called the attention of the Londoners to this diſeaſe, under the name of the "ſore throat attended with ulcers." It was then more commonly known as the putrid ſore throat, and ſpread an univerſal alarm over the town. It is now only leſs formidable, becauſe it is more univerſal, and moſt of us paſs through it in infancy or youth. The perpetual alarm concerning ſcarlet fever in our different ſeminaries is equally notorious, as it is of comparatively recent date.

The cauſe of this increaſed mortality from contagions, is an inquiry which ſhall be reſerved till we come to conſider the means of leſſening their effects, and the probability of exterminating them.

CHAP.

CHAP. IV.

OF THE MEANS OF EXTERMINATING FEVER FROM INFECTIOUS ATMOSPHERE, OR, AS IT IS USUALLY CALLED, TYPHUS FEVER.*

HAVING ſtated with as much brevity as the ſubject will permit, the laws by which different epidemics are governed, we are better prepared to inquire into the means by which their ravages may be checked, or their cauſes removed. And, firſt, of the hoſpital, camp, priſon, or poor-houſe fever.

In conſidering the laws of infectious atmoſphere, we are to keep in view the difference produced by it according to its degree of concentration, the ſuddenneſs with which a perſon is expoſed to it, the ſtate of health he is in, and the purity of the air he has been accuſtomed to breathe. Theſe conſiderations are not matters of mere philoſophical curioſity. If at the Oxford aſſizes 300 individuals were deſtroyed by an atmoſphere proceeding from the priſoners, it follows that each of the priſoners acquitted, and ſuffered immediately to depart in the ſame dreſs, muſt have carried with him a portion

* I have kept from the use of this term, not so much from a wish to avoid technical expression, for *typhus* is now almost vernacularized, but because it is sometimes used to express a low fever of any kind, and sometimes only fever from infectious atmosphere, be its character what it may.

of this infectious atmoſphere. To his own immediate family, who, perhaps, viſited him during his confinement, or even reſided with him, he might prove no way injurious; but in his progreſs to a new reſidence, every one he met or paſſed in ſuch a direction, that an effluvium might proceed immediately from one to the other, would be in danger. The conſequence might be a fever, which would neither manifeſt itſelf by any certain characters, nor would the patient, if the inhabitant of a well aired houſe, prove contagious to others. Thus the ſource of the diſeaſe would, perhaps, never be even ſuſpected. By this laſt mentioned circumſtance only, can we explain the reaſon why for ſo many years we thought only of protecting the court before whom the priſoners are to appear. "It were well, ſays that illuſtrious ſtateſman and philoſopher, Verulam, that the jail were aired before they [the priſoners] are brought forth." Happily we have now advanced ſeveral ſteps further, and a general anxiety has been excited to prevent the cauſes which produce this atmoſphere, or the neceſſity of this temporary "airing." We have endeavoured to render the ſituation of the priſoners as comfortable as confinement will permit.

But are priſoners to be the only objects of our regard? In aſking this queſtion, my wiſh is, that ten thouſand good men, whoſe intentions are I am ſure as pure as human infirmities will allow, ſhould be always fearful of foſtering that love of patron-

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age which ſo often leſſens the value of their moſt liberal donations, and even of their moſt diligent attentions.

It is very true, that order is more eaſily introduced into a priſon than into an extenſive neighbourhood of poverty, and many thanks are due to thoſe who engage in theſe benevolent offices.

Waving, therefore, theſe conſiderations for the preſent, let us return to our late priſoner. We left him in the ſtreet, infecting ſome one ſtruck with his ſquallid appearance, or whom his own watchful eye has ſelected, perhaps expecting ſomething from a benevolent countenance, or invited by a ſympathetic look as their eyes have met each other. The event paſſes like any other occurrence in a large town; and if in a few days an indiſpoſition follows, the cauſe is never ſuſpected. The anxiety of a family increaſes hourly for one whoſe numerous acts of kindneſs force themſelves on the memory, and this anxiety ſoon reaches to a circle much more extenſive than was expected. Charities before concealed are brought to light, a thouſand kind attentions are recollected, and though the adage is in every mouth, that the beſt are taken firſt,—yet the cauſe is never ſuſpected.

In this family the ſcene cloſes with the individual. But we have not yet conducted our priſoner home with his infectious clothes, and, perhaps, with the miſerable materials which formed his infectious bed. His friends viſit him, ſome with impunity, as they are unaccuſtomed to a much better air;

air; others, whoſe habits or means are a little ſuperior, are infected. If theſe return to a cloſe, crowded or ill ventilated apartment, the diſeaſe will not ceaſe as in the former caſe, with the individual who introduces it, but a new ſource of infection is generated. The immediate inhabitants may feel little more than a reduced ſtate of health from the slow progreſs by which they are habituated to a vitiated atmoſphere. But the diſtreſſes of the family requiring every reſource, perhaps a new female face may attract the notice of a town debauchee, or a *Chremes*,* on his firſt arrival at the metropolis, plenus cereris et liberi, may find himſelf inadvertently in company from which he is glad to eſcape with the loſs of his money and watch. As he comes to his ſenſes, nothing is further from his wiſh than to proclaim at once his follies and his loſſes. But it is well if the miſchief ends here. His health is endangered from more than one cauſe, though only one may expoſe the ſource from which it is derived.

Let us not promiſe ourſelves ſecurity by ſtifling thoſe ſentiments which we ought to cheriſh, nor even by the moſt guarded prudence. There are certain neighbourhoods well known to practitioners, who reſide near them, which are never free from infectious atmoſphere. They become the reſort of the moſt abject poverty. Numbers who never ſaw each other before, who have nothing to loſe, and

* Terrencii Eunuchus.

and are indifferent to life itſelf, are lodged in the ſame room or cellar, on terms which mendicity may always procure. I have heard it ſaid that ſuch places are neceſſary, but as many of them are deſtroyed, it can only be ſaid that the progreſs towards a further melioration muſt be gradual. That it may be accelerated is beyond a doubt. Mean while, if it were neceſſary to urge its importance, we need ſcarcely remark, that the wretch who laſt night procured ſhelter in a peſtilential atmoſphere, to day preſents himſelf at your carriage for relief. Should any of the younger branches of your family, juſt arrived from the ſalubrious air of the country, inhale effluvia of which his organs may not be ſenſible, a fever may be the conſequence, the cauſe of which will never be ſuſpected.

Some may, perhaps, fancy (but theſe are few) that by the diligence of the officers, all mendicity may be prevented. What, let me aſk, are the penalties? Are they worſe than ſtarving? And though this alternative may rarely happen at preſent, yet when it does, it is likely to be attended with the danger above deſcribed. But theſe are not the only dangers. There is not an article of dreſs but may become a ſource of infection. Of this there is moſt danger in ſuch as are prepared for either ſex in the chambers of the ſempſtreſs. Dr. Willan remarks, that ſecond hand clothes and day ſchools have proved the means of ſpreading ſcarlet fever. Is ready-made linen from the chambers of poverty, leſs

leſs likely to do the ſame? or is it to be ſuppoſed that infectious atmoſphere is not as eaſily conveyed as the contagion of ſcarlet fever. If the alarm is not ſo often excited, it is eaſily accounted for by the facility with which ſcarlet fever is detected and by the danger of its ſpreading; whilſt the fever from infectious atmoſphere is uncertain in its character, and however fatal to the patient, never renders him contagious. Can there be a more probable cauſe aſſigned for the fatality of ſome fevers after child birth, under circumſtances at firſt no way unfavourable? How often have theſe events occurred among the wealthy? and how rarely in well regulated hoſpitals, appropriated for the reception of females ſo circumſtanced?

During the winter of ſcarcity in 1799 and 1800, fever from infectious atmoſphere was ſo general, as to excite us to imitate the example of thoſe manufacturing towns, which are never free from the diſeaſe; and a fever houſe was eſtabliſhed in London. The ſcarcity, which at that time prevailed, compelled us alſo to do what we are for the moſt part too backward of doing, that is, to increaſe the money price of the artizan's labour. And this advance has continued, though the price of proviſions has ſince leſſened. Hence the condition of that claſs of ſociety has been meliorated, and fever from vitiated atmoſphere has almoſt ceaſed among them. But the price of *common* labour in London, is ſtill much too low. A labourer in health cannot enſure himſelf more than

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from 16 to 18 ſhillings per week. The ſlighteſt indiſpoſition therefore threatens him with thoſe calamities, which it is unneceſſary to dwell on; but which, if they do occur, may render not only the air of his apartment infectious, but every thing it contains. Even parts of the naked building imbued with this atmoſphere, are likely to vitiate the whole, if the condition of the ſucceeding tenant is ſimilar to the former.

This deſcription is, however, only the remains of what was once more general in the metropolis, and is perpetually occurring in thoſe manufacturing towns, the demand for whoſe labour is precarious. As therefore we owe ſo much of our ſecurity to the meliorated condition of the laborious claſs, let us not be too faſtidious in attending to thoſe failings, from which no rank is entirely free. I refer to the common language of ſome, that to increaſe the price of labour, is only to encourage idleneſs; as thoſe who can ſupport themſelves by the labour of three days, will drink, or be idle the other four. But this is by no means a fair ſtatement of ſo important a queſtion. It is true, there are men who poſſess a facility and accuracy in completing their work, which enables them to gain conſiderably more than others; this is the effect of ſome ſuperiority of intellect, and often even of a degree of taſte, which renders their common employment irkſome. Their company is ſought after, and they gradually become profligate. Such are the characters held up to view, by thoſe who are always teaching us the danger

danger of advancing wages. But another charge, namely, of a wiſh to imitate their ſuperiors, is often only the firſt ſtep towards becoming more cleanly and more rational.

From what has been ſaid, it follows, that to exterminate infectious atmoſphere, or the ſource of typhus fever as it is called the only means are, the cultivation of that ſpirit, which is the object of all religion and good government. If we wiſh to meliorate the condition of the poor, we muſt give them a taſte for ſomething more than the gratification of ſenſual appetites. This can only be done by enabling them to acquire ſomething more by their induſtry than is ſufficient for their immediate wants. The proper application of this ſuperfluity gradually ſuggeſts itſelf, and one of its firſt effects is to induce economy by a juſt knowledge of the value of money. Habits of order ſucceed, and an attention to all thoſe duties, without which they find it impoſſible to maintain their rank in the new ſociety into which they are gradually introduced. Often times the influence of a popular religion has proved the firſt means of exciting the cultivation of better manners. On ſuch occaſions, it is ſaid to diffuſe a general gloom over the character, inconſiſtent with the true ſpirit of Chriſtianity; but this is by no means a neceſſary or a conſtant conſequence. The imputation, like many others, ariſes from a too partial view of the ſubject. It is to be wiſhed, that where the motives cannot be ſelfiſh, we ſhould all give each other credit

credit for good intentions. There are various modes of happineſs, and various means which lead to the attainment of the ſame object, but no means ever remain popular, unleſs they ſecure the end, and this can only be ſecured by the cultivation of thoſe habits which morality enforces, and for which religion offers its rewards.

CHAP. V.

ON THE MEANS OF LESSENING THE EFFECTS OF EPIDEMICS, ARISING FROM OR INCREASED BY THE CONSTITUTION OF THE ATMOSPHERE.

THESE epidemics are of two kinds. The firſt depends on conſtitutions of the atmoſphere, occurring at uncertain periods, but always increaſed by locality or the ſtate of ſociety. Of theſe, the moſt remarkable and beſt known in this country is the influenza.

The ſecond ariſes from a ſoil, the exhalations from which are injurious at certain ſeaſons; but either theſe exhalations are more powerful at ſome of theſe ſeaſons, or their effect is increaſed by a certain conſtitution of the atmoſphere. Of theſe, the moſt remarkable are the ague and the yellow fever.

Influenza uſually takes place in the ſpring; its violence is very uncertain, but its effect appears to be uniform in the following particulars. Its range is more general than any other epidemic, ſometimes extending over almoſt the whole globe; it rarely remains in the ſame place more than a month. Though it ariſes from the atmoſphere, yet thoſe who are moſt congregated, or moſt ſubject to a confined air, are ſooneſt affected by it. The laſt volume of the Medical Tranſactions, gives a more correct account than is any where

where elſe to be met with of the influenza in 1782. By this it appears, that the diſeaſe was peculiarly prevalent on board ſhips; that it appeared earlier in towns than in villages; and earlier in villages than in detached houſes in their neighbourhood. Seventeen perſons in health arrived at the Adelphi Hotel, and the following morning all were ſeized with influenza. It is added, of the diſeaſe in general very few died, and of thoſe few the greater part were old, or aſthmatic, or debilitated by previous indiſpoſition*. It appears, however, from the bills of mortality, that the increaſe of deaths by fever was from 28 per week to 121. Theſe were probably confined to the poor, as the experience of the College, and even the reports they received, would not lead to ſuch a concluſion.

The increaſed effect of influenza from the accumulation of numbers, is confirmed by other writers. Sir John Pringle ſays, "The influenza which paſſed throughout all Europe, was ſenſibly felt at Bruſſels, though but little in the cantonments, otherwiſe than by relapſes of thoſe who had recovered from agues." As the ſubject will occur again, I ſhall conclude at preſent with two other inſtances, which were remarked with more attention, becauſe the opinion had been previously ſtarted. In Madeira, the firſt and moſt violent ſymptoms of epidemic catarrh were among the lazars, who are crowded together. Dr. Veitch has

* Medical Transactions, Vol. iii.

has done me the honour, in a private letter from the Ophthalmia Depôt at Selſea, to inform me that the laſt epidemic catarrh was violent in proportion as the barracks were filled.

There are many inſtances of the ſevereſt influenzas, in which thoſe who were much expoſed to the air, eſcaped altogether. Such was the caſe with the ſchool at Ackworth, which being governed by the ſociety of Friends, we may conclude is well regulated, as to cleanlineſs and free circulation of air. The ſame was remarked of a ladies boarding ſchool, conſiſting of sixty ſcholars, who are pretty conſtantly in the open air, but have no intercourſe with the village.* On the whole therefore we may conclude, that though the influenza ariſes from cauſes which we can neither detect nor entirely controul; yet the proper means of leſſening its effects are by free ventilation, and avoiding every accumulation of individuals in confined ſpots.

Reſpecting ague, we have already ſeen that ſuch an accumulation of diſeaſed ſubjects as is likely to produce hoſpital fever, muſt increaſe the number of ſufferers, and the ſeverity of the diſeaſe. The cauſes of ague are univerſally admitted; the ſeaſons alſo are well known. Nor is it neceſſary more than to remark, that the effect of theſe cauſes, viz. of ill-drained countries during ſpring or autumn, is much increaſed in ſome years from a conſtitution of the atmoſphere; of the nature of which

* See Memoirs of Medical Society, Vol. vi. p. 352.

which we are entirely ignorant. All we know is, that where the level of the land is ſuch that it may be permanently drained, ague ceaſes, or occurs only at certain periods, when the inhabitants of the marſhes are peculiarly affected; and the range of the diſeaſe extends in a few inſtances to the towns themſelves.

Another law is equally well known, that new comers are attacked with much more certainty, earlier in the ſeaſon, and with greater violence, than natives or long reſidents. The uncertainty of the period of attack after expoſure to the cauſe, is not leſs univerſally admitted. In a regiment, half of whom may ſuffer, the period of attack will vary from a few to any number of days. Some, who appear to eſcape altogether, will be ſeized after the ſeaſon has paſſed; and even after the encampment is removed to a healthy ſpot. In many of theſe inſtances, though not in the progreſs of the diſeaſe, when formed, the ague of northern climates reſembles yellow fever of the tropical islands.

Yellow fever is, I am afraid, much too general a term. All violent fevers, if epidemic, in the Weſt Indies, or during the hot ſeaſon of the American continent, ſeem to fall indiſcriminately under this name; yet all cannot ariſe from the ſame cauſe. As the mode of treatment in moſt acute diſeaſes muſt be regulated in ſome meaſure by the individual ſymptoms, this general appellation may ſeem of leſs conſequence. But when we look to the

the means of prevention, by far the moſt important in ſuch deſtructive complaints, the queſtion is truly ſerious. In many of the islands it cannot be queſtioned that at certain ſeaſons the mere circumſtance of ſoil is ſufficient to produce the moſt ſudden and deleterious effect. That this is unconnected with any human effluvia is evident, from the frequent dreadful effects which attend wooding and watering in places in which there are no human habitations. Far different from ſuch a cauſe are the ſuddenly raiſed and ill drained towns of America. In theſe, during the ſummer heats, a particular conſtitution of the air produces a fever. Neither of theſe cauſes act beyond the place in which they exiſt. The woodmen or waterers return to their crews, and after a period, uncertain according to the degree of cauſe, are ſeized with fever and die. It is melancholy to ſay, others ſucceed them and ſubmit to the ſame fate; meanwhile their comrades remain in health, unleſs the veſſel has approached the deleterious ſhore, or the ſhip fever is generated by the number of ſick. The citizens of America ſometimes fly from their peſtilential towns too late, are ſeized with fever in their new reſidence, in which, whether they die or recover, they never prove contagious to thoſe about them. Yet ſtill there are thoſe who conſider the diſeaſe contagious.

But as my buſineſs is confined to our metropolis, it is enough to remark, that thoſe few who conſider yellow fever as contagious, admit "It is never known excepting in tropical climates, or where the

the atmoſpheric heat has for ſome time been equal to the tropical; that is, at or above 80." Thoſe Americans, who aſſert that the diſeaſe is brought from the Weſt India islands, do not, we have ſeen, inquire after the health of thoſe islands in regulating their quarantine, but determine it by the ſeaſon of the year in their own towns: and though England has required quarantine of veſſels bound from an American town under yellow fever, yet from the Weſt Indies, the ſuppoſed ſource of the diſeaſe, quarantine has rarely been required, excepting under great mortality in our armies or fleets. In theſe caſes, the ſhip or camp fever may have been generated, and ſome attention may be neceſſary on the firſt landing of ſuch a crew. But againſt contagion from a diſeaſe produced by the nature of a place, a quarantine muſt be unneceſſary.

As yellow fever has never appeared among us, our governors have confined there attention to its prevention, leaving the police, ſhould the contagion ariſe, to be governed, it may be preſumed, by that general conſolidating act of 40 Geo. III. Before we touch on theſe ſubjects, it may be right to take as accurate a view as poſſible of all that has been ſaid concerning the contagion of plague.

CHAP. VI.

OF THE PLAGUE.

THE many laws which yellow fever and plague have in common, might induce us to ſuppoſe that in their manner of ſpreading they reſemble each other. There is, however, one moſt important difference, namely, that the plague may exiſt under our ſummer and autumnal temperature, which it is univerſally admitted yellow fever can not. Nor do I recollect any inſtance that can be depended on, in which the true plague has appeared between the tropics. Tropical heat, which is ſaid to be neceſſary for the production of yellow fever, is found always to arreſt the plague. What then are the laws by which plague is governed in its appearance, in its ſpreading, and in its ceſſation?

It is well aſcertained, that it only appears at certain ſeaſons, and under certain temperatures. That when it does appear, it only ſpreads in particular towns, and ſometimes only in particular precincts of thoſe towns, and that perſons removed from thoſe towns in a diſeaſed or dying ſtate, do not prove contagious to others in healthy towns. It is not leſs certain, that the plague is conſtantly exiſting in ſome places during certain ſeaſons, tho' in moſt of them unknown at others. To prevent, therefore, the introduction of ſuch a contagion, it would

would ſcarcely be ſufficient to make a perpetual interdiction of all intercourſe with Egypt and the Levant, and with all thoſe countries which hold intercourſe with them. Yet as our commerce with that part of the world has increaſed, our freedom from plague has been more ſecured. To what then are we to attribute the plague? Is it to a particular mixture in the atmoſphere, which, like that which cauſes ague, is only injurious at certain ſeaſons and in certain places? or is it to a conſtitution reſembling that which cauſes influenza, and which ſometimes extends over a conſiderable part of the habitable globe? To which ever of theſe we impute it, we ſhall find the ſame means are to be purſued for our protection.

If its origin is ſimilar to ague, it is not exactly the ſame. The plague originates in towns, ague in marſhes. Yet there is reaſon to believe both are in part attributable to properties in the ſoil, though each of its own kind. Agues are more frequent in proportion as a country is ill drained and ill cultivated. Plague is frequent in proportion as a town is ill drained or ill paved, that is, as the excrements of living and corrupted parts of dead animals are ſuffered to remain on the ſurface, and to be gradually abſorbed by the earth. That ſuch was the caſe with London before the great fire is readily proved by the pains which were afterwards taken to preſerve a proper level in conſtructing the new town. This, with the advantage of paving, which

was only gradually accompliſhed, was for a long time the principal benefit derived from the fire.

Though a marſhy country may be neceſſary to produce ague, and an ill drained town to produce plague, both require another cauſe, or, in other words, theſe are only efficient under certain circumſtances of temperature or ſeaſon.

No one is ignorant of the ſeaſons of agues, nor of their uncertain extent and prevalence during thoſe ſeaſons. In Egypt, the ſeaſons for the plague are particularly regular, though its extent is uncertain. It is diſregarded after the ſummer ſolſtice, and the apprehenſions of its ſeverity are regulated by its early appearance in the winter or ſpring.

When ague is particularly prevalent, its extent is proportionally great: diſtricts are viſited, which from long exemption, fancied themſelves ſecure, and ſolitary inſtances are met with in parts remote from its ſource. The ſame is remarked of plague.

To avoid ague, lands are drained, and where this is not prevented by an abſolute incapacity from the level of the ſoil, the remedy is permanent. Towns, and even parts of towns, are relieved from plague in proportion as they are drained and paved. If the ague extends further beyond its ſource than the plague, may it not be accounted for by the general and continued calm with which plague has uſually been attended in more northern diſtricts, and which in theſe places ſeem neceſſary for its exiſtence?

All that has hitherto been ſaid is reduceable to proof.

proof. But ſtill the queſtion remains, whether a peſtilential ſubject is contagious? I ſhall at preſent only remark, that thoſe who urge the contagious property of the plague, differ exceedingly in fixing the laws of ſuch contagion.

Dr. Ruſſel, to whom we never can be ſufficiently thankful for ſo great a number of well aſcertained facts, conceives that contagion is conveyed in the uſual manner by contact or effluvia. Dr. M'Gregor aſſures us that the plague is only contagious by contact; and Dr. Blackburn produces a hoſt of evidences that it is not communicable by contact. Yet from Dr. Ruſſel we have an account of twelve families, in eaſy circumſtances, among whom the diſeaſe did not extend, though the ſick were nurſed with the utmoſt care and without the leaſt precaution. In eight other families, all of inferior rank, the diſeaſe extended, but at ſuch uncertain periods, that it is impoſſible to aſcertain whether the ſick were affected from each other, or from one common cauſe in the atmoſphere of the houſe or neighbourhood. Dr. M'Gregor alſo details ſeveral caſes, in which the diſeaſe ſpread without any certainty; in ſome without any probability of contact, and many others, of contact without ſubſequent injury.

It is to be wiſhed, that we ſhould leſs deſpiſe the opinions of the natives, who are ſo much better acquainted with the progreſs of the diſeaſe. From them we learn the periods at which the plague diſappears, and from them we ſhould be led

to

to ſuppoſe that it was not contagious. We are told, that their want of caution ariſes from their notions of predeſtination.

But this apparent want of caution is not confined to the Mahomedans. The Jews, though always alarmed at the approach of the diſeaſe, never deſert their ſick, and the doctors are principally Greeks. We ſhould recollect too, that from this quarter we derive inoculation, and that the ſame people who are ſo ready to expoſe themſelves to peſtilential ſubjects, have ſhown a readineſs to avail themſelves of cow-pox. How ſhall we account for this difference? Is it not obvious? Few, excepting the poor, ſuffer by the plague; and the wealthy have diſcovered, that when an individual among them is affected, the diſeaſe does not ſpread in their families. If any thing can be wanting to prove the abſurdity of ſuppoſing that men are governed by ſuch prejudices in matters which relate to health and life, we have the poſitive authority of their law to ſhow that though they are not allowed to deſert their ſick, they are counſelled not to frequent *a contagious habitation*, where they have no lawful affair to invite them.* In perfect conformity with this, we find that when the plague "broke out in an Arab camp, many of the Arabs abandoned their tents." "At the diſtance of leſs than a hundred paces, was encamped a tribe of Chinganas, who, when they obſerved the diſeaſe to increaſe ſo faſt among

* See Thornton's View of Turkey, p. 269.

among the Arabs, had the prudence to tranſport their tents to a neighbouring village."* A lady, with three other women, carefully nurſed one of her ſons in a ſmall but clean chamber with a low ceiling. All the females eſcaped; but another ſon, who is not mentioned among thoſe that entered the chamber, was ſeized about a fortnight after, and died on the 4th day. After this the family *abandoned the houſe.*† Dr. M'Gregor informs us,‡ that though the Greek barbers were very ready in examining the ſick in the firſt inſtance, under Mr. Blackall, though they viſited the inhabitants, and narrowly examined every body before interment, yet whilſt the plague was at its height, no bribe, however conſiderable, could induce them to enter the peſt-houſe. As the diſeaſe declined, many of them offered their volunteer ſervices. From all this it is evident, that if the inhabitants of plague countries are careleſs of contagion from a diſeaſed ſubject, they are not ignorant that certain places are peſtilential at certain periods.

Dr. White is often produced as an inſtance of the danger of truſting to the non-contagious property of the plague. This gentleman derived his opinion from what he ſaw on board the tranſports, and from the ſecurity with which he viſited peſtilential ſubjects at a diſtance from the ſource of the diſeaſe. No ſooner had he entered the peſt-houſe, than he was attacked with the diſeaſe, whether from inoculation

* Ruſſel, on the Plague, p. 25. † Id. page 4, Appendix. ‡ Medical Sketches.

inoculation or not cannot be aſcertained, as ſo many others were ſeized without undergoing that experiment.

In the return of the Indian army from Egypt to Aſia, ſolitary inſtances of plague occurred. Theſe ſubjects had moſt probably contracted the diſpoſition to the diſeaſe during their reſidence at its ſource. Much pains were taken to prevent its ſpreading, and we are told that theſe means ſucceeded. But it is well known, that under exactly ſimilar circumſtances, excepting that no caution was uſed, the plague has not ſpread, though the mortality has been greater, and the ſcene has been laid in a country ſubject to returns of the diſeaſe.*

Enough has been ſaid, to ſhow that we are not to calculate by the laws of thoſe contagions with which we are acquainted, if we wiſh to deviſe means for avoiding or preventing the extention of the plague. How then ſhould we proceed? Firſt, as to preventing its introduction.

As I hope many of my readers will be mercantile men, I ſhall ſay but little of the ſecurity to be derived from quarantine. Few of them are ignorant how little it can be depended upon in a coaſt ſo extenſive

* "In the mean time, says Dr. Russel, so far is certain, that although infected persons came from the mountains to the three towns just mentioned, and some of them died in the families where they lodged, yet the distemper by such means was not propagated; as if divested of that contagious property in the plains which it seemed to retain undiminished in the mountains."—Russel, on the Plague, p. 26.

extenſive as ours. Dr. Ruſſel has taken conſiderable pains to inforce the neceſſity of a better regulation in this reſpect. That neceſſity would appear infinitely more imperious if we had ſuffered by our inattention. Let me only relate from Dr. Ruſſel the manner in which the plague was ſaid to be introduced into Meſſina.

" This declaration, on oath, together with the exhibition of a clean bill of health, induced the magiſtrates of the health office (who were then ignorant of the other circumſtances of his having been firſt at the other infected parts of the Morea, or that one or two of the ſailors had died on board, of the plague) to admit the veſſel to quarantine at the Lazaretto, wherein, with the uſual formalities, they began to depoſit the wool and the corn; nor, according to human appearance, would the infection have ever been introduced into the city, had it not been for a fiſherman, who afterwards, on his death-bed, diſcloſed the fatal ſecret of his having found means, ſoon after the padrone's arrival, to receive from him in the night ſome bales of tobacco, covered with infected canvas, and ſome pieces of linens, which he carried by ſtealth to his own houſe, in a part of the city called Pizzillari, where the diſtemper in effect firſt appeared; ſo that the running aſhore of thoſe infected goods was the cauſe of all the fatal conſequences that enſued; which I mention in juſtification of the magiſtrates, who took all the moſt vigorous and prudent meaſures at the Lazaretto for the public preſervation;

and

and in diſcharge of their office afterwards courageously ſacrificed their lives, devoting themſelves, in a manner, to certain death: but they were betrayed by their ſubaltern guards in whom they confided." * Stories related on ſuch authority have always ſomething ſuſpicious about them. But admitting the truth of the above, can we ſuppoſe that any quarantine is unattended with ſimilar occurrences?

On the ſubject of quarantines, it is not my intention to dilate by ſhowing the injury ſuffered by commerce in conſequence of them. This conſideration, when compared with the preſervation of a town from ſuch a calamity, is unworthy of notice. But quarantines are not innocent things in themſelves. After the arrival of a ſhip's crew, under circumſtances of deſpondency from ſcurvy, or any other diſeaſe, the diſappointment of all their hopes of relief by conſigning them to impriſonment, is to abandon many of them to certain death.

When this impriſonment is on board their own veſſel, gloomy as it muſt be, they are at leaſt expoſed to no new dangers, and the hopes of a certain termination of the period of confinement may afford ſome ſolace. But if they are to be forced into a Lazaretto, it is of much importance to inquire into the poſſibility of error, concerning the cauſes of their conſequent mortality. It is well known that moſt of the old ports are crowded with inhabitants,

* Ruſſel, p. 227.

inhabitants, in conſequence of the value of land in ſuch places. Many of them alſo are in ſituations which cannot be drained, ſome of the ſtreets conſiſting of embankments from the river or ſea. The inhabitants of ſuch ſpots, like the inhabitants of ague countries, may be in a certain degree familiarized to the air even in bad ſeaſons; but to thoſe who arrive freſh, the effect will be ſudden, as the cauſe is new and more powerful.

The following is Dr. Ruſſel's account of the firſt introduction of the plague at Marſeilles.

" Two days after the arrival of this ſhip, one of the ſailors died; on the 12*th of June*, an officer of quarantine, who had been put on board, died alſo; and this was followed by the death of a cabin boy on the 23d. About the ſame time, ſome porters employed in opening the merchandiſe in the Lazaretto, were taken ill and died; in *the firſt week of July*, three others fell ſick in like manner, but in theſe, buboes were diſcovered in the axilla and groins. The ſurgeon of the Lazaretto, who had hitherto aſcribed the alarming mortality to ordinary fevers, now, for the firſt time, expreſſed his ſuſpicion, and a conſultation being held with two other ſurgeons, they, after viſiting the ſick, gave their opinion in the moſt expreſs terms to the council of health, that the three patients had the plague. This was on the 8th, and all three died next day. The prieſt who had adminiſtered to the ſick, and the ſurgeon of the Lazaretto with part of his family, were infected alſo and died."

Here it appears that the firſt ſufferers were the new comers, and next thoſe who reſorted from other parts of the town to the peſtilential diſtricts. The firſt appearance of yellow fever in the Weſt Indies has uſually been among the freſh arrived.

" The plague, " ſays Dr. M'Gregor," made its firſt appearance in the army from India, in the middle of September, 1801. From its early appearance, the natives were very much alarmed, and propheſied a dreadful ſeaſon of plague. They have obſerved, that, when it breaks out before December, they have always a generally prevailing and a very deſtructive diſeaſe.

" Soon after the Britiſh army effected their landing at Aboukir, they were attacked with the plague, though the diſeaſe was at that time on the decline." *

The same author afterwards obſerves, that tho' the diſeaſe is ſeldom, he believes, out of the country, yet the natives denominate from November or December to the following June, the plague months. Thus it appears that the diſeaſe was anticipated two months by the new comers. But it will not be ſaid, becauſe they were the firſt ſufferers, that they introduced the plague.

By theſe remarks, my only wiſh is to ſhow, that if a ſhip's crew, immediately on its arrival, ſhould be the firſt to ſhow the plague or any other fever, the probability is, that the cauſe is to be looked for

* Medical Sketches, p. 104 and 105.

for in their greater ſuſceptibility, and not in their bringing a contagion with them. If the diſeaſe ſhould ſpread, not only over ſuch a town, but wherever elſe the diſeaſed may fly, the queſtion may be involved in ſome obſcurity. But ſhould it be confined to the town, and even if thoſe who eſcape with the diſeaſe never infect the neighbouring towns or villages, it ſeems unreaſonable to accuſe the newly arrived crew of bringing a diſeaſe which they cannot convey further.

The prejudice in favour of quarantines does not end here. Aſſociated with it is the drawing cordons of troops round the city, a part of whoſe police is, to confine every inhabitant of a peſtilential houſe or diſtrict to his particular habitation. Now if it is really true, as experience proves, that thoſe affected with yellow fever or plague may be removed to healthy ſituations and recover or die, without injury to others, nothing can be more wantonly barbarous than ſuch a policy. Even if we admit the utmoſt that the advocates for contagion require, namely, that the diſeaſe is contagious under certain circumſtances, ſtill it is unqueſtionable that thoſe circumſtances, after a time, ceaſe of themſelves. Ought we not then to find ſome proviſion for the devoted inhabitants of the peſtilential diſtrict, rather than conſign the whole, whether diſeaſed or not, to proſpects ſo deſponding and wretched?

Leaving therefore the queſtion of quarantine to be diſpoſed of by thoſe general means which ſhall

ſhall be hereafter propoſed, let us conſider how we ſhould conduct ourſelves in caſe of the actual appearance of the plague. If our long exemption ſhould induce us to promiſe ourſelves a perpetual ſecurity, let us bear in mind that there are parts of our town as obnoxious to this calamity as at any former period; and that if we have eſcaped for a great number of years, the ſame has been the happineſs of many other towns, whoſe condition has declined inſtead of being improved. As well may we promiſe ourſelves a perpetual exemption from a long continued froſt, becauſe in the memory of the preſent generation, a fair has not taken place on the Thames.

We have no accurate meteorological table, to teach us the ſtate of the atmoſphere during former plagues; by the imperfect account left us of the laſt, we are informed, that for ſeveral days the winds were ſo ſteady, or their force ſo trifling, that all the vanes remained without changing their aſpect. Another ſuch period may arrive, when it will be eaſy to prove the introduction of ſome peſtilential packet, and to ſhow that a certain number of individuals in a confined neighbourhood, have been ſeized with the diſeaſe in ſucceſſion. Under ſuch an alarm, it will be in vain to urge that the ſame goods have been diſſeminated throughout other parts of the town, in which the diſeaſe is ſtill unknown; or that individuals, whoſe buſineſs have taken them to this peſtilential neighbourhood, have ſhown the diſeaſe in their own families, without

without injury to any of them. All will be diſmay, and in the too great eagerneſs to preſerve ourſelves, too little regard will be paid to thoſe whoſe ſituation claims our firſt attention, and whom we might comfort, or even preſerve, without injury to ourſelves. Inſtead of confining the diſeaſed and their friends to peſtilential corners, let them be adviſed to quit them; and let a mark be placed on ſuch empty houſes, or deſerted diſtricts.

In this climate ſuch a calamity has uſually happened at a ſeaſon, when many of the wealthy have left the town. Such as have remained will be anxious to abandon a city, the peſtilential parts of which they will multiply according to their fears. Many of the wiſeſt owners of large manſions, which they have deſerted, will leave the principal floors under the direction of diſcreet or perhaps authoriſed managers, who will remove the more delicate furniture, and ſecure it under ſeal in the upper ſtories. But before ſuch a boon is accepted, every untenanted houſe will be occupied as a receptacle for thoſe who are prevailed upon to quit a peſtilential diſtrict. In a few days all the terror, and with it all the barbarities which have diſgraced former viſitations may ceaſe, or perhaps they will never exiſt. None will be forced into peſt houſes, where they and their attendants muſt contend with hoſpital fever as well as plague A change of atmoſphere will be anxiously looked for; daily reports will be made; and as ſoon as it can be done with ſafety, the houſes in healthy

thy diſtricts, occupied by fugitives from peſtilential quarters, will be cleared, if neceſſary, by magiſterial authority; proper indemnities made; and each will return to his habitation, ſooner or later, as he may be ſatisfied that it can be accompliſhed with ſafety.

This return, however, of the wealthy ſhould not be too early. The ſeaſon immediately after a plague ſeaſon is uſually abundant in other diſeaſes; nor is it certain that enough of the peſtilential atmoſphere may not remain to affect thoſe who have been breathing a purer air. If the town houſes of the wealthy were to be deſerted for the whole of the ſucceeding ſummer, and during that period were to undergo painting and white-waſhing, the inconvenience would be trifling, compared with the benefit afforded. The expence ſhould be defrayed by the public, if the owners require it.

If it ſhould be aſked, Where are the officers to be found for theſe purpoſes? The anſwer is ready. As ſoon as the buſineſs becomes in a train of organization, all difficulties would ceaſe. The firſt beginning muſt be with the medical men, who will each remain at his poſt, and whoſe preſence will give courage to the magiſtracy. None will encounter new dangers. Each will report the ſtate of his own diſtrict; and thoſe who are fixed in parts which prove to be peſtilential by the numbers ſeized, will only remain until the other inhabitants

bitants are adviſed to, and have the means of, removing alſo.

Such appears to be the proper mode of meeting this dreadful calamity, ſhould it ever occur. In the mean time, let us conſider the magnitude of the queſtion, and learn all that can be taught by the misfortunes of others. Let proper means be inſtituted of aſcertaining where it can be beſt known, the progreſs of the diſeaſe, to what we are to impute the indifference of thoſe who ſeem moſt expoſed to it, and above all, to what we are to impute their eſcape.

Before I take my leave of plague, it is neceſſary to anſwer one queſtion, which for the ſake of order, has hitherto been unnoticed. How, it may be ſaid, are the villages infected, if not by the reception of peſtilential ſubjects? This is not ſo eaſily anſwered in England, becauſe we cannot ſo eaſily aſcertain what was the condition of our villages a century and half ago. From the general improvement of the country, we may conceive them to have been very different from what we now ſee. As to the villages in peſtilential countries, we have proof enough, that they are the proper nidus of peſtilence. Dr. Ruſſel informs us, that in Syria and Cyprus the villages are "like the Kaiſarias within the city, which are inhabited by the lower claſs of people, in which the contagion ſpreads with great fury."

During the laſt viſitation, every town within twenty

twenty miles of London was more or leſs infected; and moſt of the principal towns in England, beſides ſome parts of Ireland.* Yet Oxford, which was previously drained and cleanſed, eſcaped, though the court removed thither; and no precautions that I can find, were uſed to prevent the introduction of contagion from London.†

Thus, in all the diſeaſes which depend on the atmoſphere, whether at particular ſeaſons or otherwiſe, it is certain that their frequency and violence depend on the manner in which the human race is congregated. In moſt of them, free ventilation and cleanlineſs, if not a certain, is at leaſt a conſiderable preſervative. In all, an improved diet, cloathing, ſufficient fuel, the abſence of dejection, and the proſpect of an improved condition, are the means of prevention, or of cure. It is highly ſatisfactory, that all theſe are progreſſively increaſing among us; and we may, without indulging any romantic opiñions, look forward, if not to the entire extinction of the diſeaſes enumerated, at leaſt to the continuance of their gradual diminution. What is ſtill more agreeable is, that this diminution has been hitherto brought about, and muſt be increaſed, by our improvement in all thoſe ſocial virtues which the philoſophy of the ancients inculcated,

* Heberden, p. 80.

† At this time the firſt gazettes were published, and it is remarkable, that during the greatest violence of the diſeaſe, no notice of it occurs.

culcated, and without which, every religious profeſſion would not merely be ſuſpected, but be held in abhorrence.

Another ſhort remark. It has been obſerved before, that thoſe who attempt to meliorate the condition of the poor, are ſaid to be ſometimes ſo inquiſitive into their habits, as not only to leſſen the value of their charities, but to deteriorate the moral characters of thoſe whom they wiſh to aſſiſt. Without inquiring into a ſubject foreign to our preſent buſineſs, the reader will perceive that thoſe who are accuſtomed to a pure air, may find the inconvenience of too cloſe an intercourſe with others, who have long remained under diſtreſs, yet ſhow no particular ſymptoms of diſeaſe. Nor is there any reaſon why thoſe whoſe ſituation is ſuch as to afford all the bleſſings of life, ſhould wantonly endanger their health, where no particular office or profeſſion requires it. They may find almoners who are more accuſtomed to breathe a tainted atmoſphere, and the little they know of the habits of ſuch as they wiſh to relieve, renders them often incompetent to do more than to furniſh the means. Nothing that has been ſaid, ſhould render us inattentive to the great object of all good men, the melioration of the human race. This is not only the wiſh, but the labour of a much greater number of individuals, than thoſe believe, who ſee only the exterior ſtate of ſociety.

CHAP. VII.

ON THE MEANS OF EXTERMINATING CONTAGIONS.

IN the laſt Chapter we have ſeen that to improve the moral character, to cultivate all the ſocial duties, to render our fellow creatures as well as ourſelves happier and better, are the means of leſſening the effects of ſome epidemics, and of exterminating others. What is ſtill more conſolatory, we have been able to eſtimate the progreſs of improvement in the ſtate of ſociety by the diminiſhed effects of ſuch epidemics.

At the ſame time, we have witneſſed a melancholy increaſe of mortality from the contagions. This is enough to ſhow, that the means purſued for the extermination of one claſs, are at leaſt inſufficient, though they may not be inapplicable in the others.

Of the contagions, I have ſelected ſmall-pox, measles, and ſcarlet fever. Theſe are univerſally admitted to be contagious, and theſe we ſhall ſee have greatly increaſed in mortality. This will ſurpriſe us the leſs, when we reflect on what was remarked, whilſt conſidering the impoſſibility of always guarding ourſelves againſt the effect of that infectious atmoſphere, which induces hoſpital fever. This fever, we ſaw, might be excited by the vitiated air of a hoſpital or priſon, inhaled on the ſpot, or conveyed in the clothes or other ſubſtances

ſtances imbued with it. The ſame is well aſcertained of the contagions. But the fever from the infectious air of hoſpitals or priſons, does not render the patient infectious; conſequently, by cleanlineſs and ventilation, even the nurſes are ſecured from any danger. On the contrary, in the contagions, the patient is himſelf contagious; and there is reaſon to believe, that this contagious property is diffuſed further, or retains its influence to a greater diſtance, in proportion as the atmoſphere is more free from other impurities. We have ſeen that during the laſt plague, when not only London, but all the great towns and many of the villages were infected, Oxford remained ſo free that the court, the parliament, and ſeſſions were removed thither. Dr. Plott, author of the hiſtory of Oxfordſhire, very reaſonably imputes this exemption to the draining and greater cleanlineſs of that city. But it is evident, that Oxford was conſidered as more troubled with ſmall-pox in proportion to its ſecurity from other epidemics. The learned author concludes his anſwer to this accuſation againſt his favorite ſpot in theſe words. "But admit the objection be truly made, and that Oxford is more ſubject to ſmall-pox than any of the neighbouring cities, yet if by ſo much the leſs we feel the rage of the plague, I think the edge of the charge is ſufficiently rebutted."

When we come to conſider the means of exterminating ſmall-pox, we ſhall find many other inſtances in which this opinion is ſtrengthened. But

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the contagion of ſmall-pox is now a complicated ſubject, comprehending a variety of queſtions. We ſhall, therefore, commence our inquiry with ſcarlet fever, a diſeaſe which has never been inoculated, and the ravages of which, in England at leaſt, appear of modern date.

OF THE MEANS OF LESSENING THE MORTALITY FROM SCARLET FEVER.

We have before remarked, that ſcarlet fever is in the bills of mortality included under the general term of fever, and alſo of how little account it was made by Morton.

In the Edinburgh Medical Eſſays, we have an account of ſcarlet fever, when epidemic in New England. "It ſeized, ſays Dr. Douglas, half the inhabitants, and killed one in 35. In ſome places one-ſixth, one-fourth, or one-third died of the ſick. There is no certainty how the diſeaſe arrived there, but Dr. Willan conjectures with much probability, that it was conveyed from ſhips cleared out at Plymouth, Falmouth, or ſome other of our ſouthern ports. Mr. Colden remarks, that the diſeaſe firſt appeared at Kingslande, an inland town. It gradually ſpread from thence weſtward over all the colonies of North America; was two years in Hudſon's river, and ſome time before it paſſed that river, its firſt appearance being in places to which the New England traders reſorted, or through which they travelled.

Dr. Huxham deſcribes its ravages in the Weſt of England in 1734. Dr. Fothergill's account is well

well known to moſt, and many of my readers will recollect when, after the death of the Pelhams and another family, that every one with a ſore throat was alarmed for himſelf, and regarded with ſome ſuſpicion by others. But the ravages were moſt conſiderable in the country. Dr. Cotton of St. Alban's, ſays, "Many pariſhes have felt its cruelty, and whole families of children (whence its contagious nature is too evident) have by its ſucceſſive attacks been ſwept off. Few, very few eſcaped."

Our ſettlements in N. A. ſays Dr. Willan, ſuffered dreadfully by it between 1746 and 1760. "Like moſt new diſeaſes, ſays Mr. Kearsley of Philadelphia, till their conſtitution is underſtood, it ſwept away all before it: it baffled every attempt to ſtop its progreſs, and ſeemed by its dire effects to be more like the drawn ſword of vengeance, to ſtop the growth of the colonies, than the natural progreſs of the diſeaſe; whole villages were depopulated, and parents were left to bewail the loſs of their innocent offspring."

Dr. Withering, though he does not aſcertain the proportion of fatal caſes, gives a deſcription ſufficiently tragical to ſhow the horrors of this epidemic during an unfavourable ſeaſon. Dr. Johnſon's account is very ſimilar. Dr. Clarke of Newcaſtle, ſtates the number of malignant caſes as one in twenty at the loweſt.

This is enough to ſhow the ravages of a contagion of no great antiquity, when it becomes epidemic under a formidable type. If its fatality has of late

late years been leſs, its univerſality has certainly not leſſened.

But it is time to conſider how we are to protect ourſelves from theſe dreadful calamities, which are not to be avoided by the general means that are efficacious in the other epidemics.

The only means that remain, are the preventing the introduction of diſeaſed ſubjects, or of ſubſtances imbued with contagion. We have ſeen the difficulty of this, becauſe there are no means by which we can aſcertain the preſence of ſuch a contagion; and when it occurs in London, it is ſeldom that we can trace the ſource. The next ſtep, therefore, muſt be to prevent the ſpreading of contagion, whenever the diſeaſe appears. This can only be done by the ſeparation of the ſick from the reſt of the community. The difficulty of this in a large city is obvious, becauſe it is impoſſible to aſcertain the numbers who may be affected before the event is publicly known, and ſtill leſs the numbers, who having been expoſed, may ſhow the diſeaſe after a certain time. No attempts, therefore, have hitherto been made in London towards the ſeparation of thoſe affected by any of the above mentioned contagions. But it does not follow that the attempt is impracticable.

"The late Tiſhoo Lama, we are told, when the ſmall-pox broke out among the inhabitants of the immenſe monaſtery in which his palace is contained, removed his court; and the capital Teſhoo Loombo remained three years without inhabitants, that

that it might be no longer contagious." * By all theſe cautions, the Lama remained free from the ſmall-pox till the age of 46. At that time he made a viſit to China, whoſe emperor, anxious to pay him divine honours, made a grand entertainment for him in the Garden of Gardens. Soon after this, the Lama was ſeized with ſmall-pox and died.†

From this and many other well known events, it is evident, that though it is impoſſible always to prevent the introduction of a contagion, and the conſequent death of a certain number of individuals, before the officers of health are alarmed, yet that the greater part of a community may be preſerved from ſuch diſeaſes as long as they ſubmit to remain in the place of their nativity, or quit it only when directed by the magiſtracy. But continual alarm is to moſt minds more painful than temporary ſuffering, or even than paſſing through a certain danger for future ſecurity. In order, therefore, to eſtimate the whole queſtion, we muſt conſider the ſtate of the perſon before and after he has acquired ſuch a ſecurity. This cannot be done without conſidering the quantum of danger with which he is threatened, the chances of eſcape from the effect of the means by which he gains his future ſecurity, and the advantages he derives from it. In doing this, I ſhall firſt confine myſelf to ſcarlet fever for the reaſons before mentioned, and becauſe the ſubject

* Turner's Thibet, p. 219, &c.
† Macartney's Embaſſy, Appendix.

ject has been ſo recently canvaſſed by very able hands.

" Influenced by a conſideration of theſe circumſtances," (the contagious nature of ſcarlet fever) ſays the ſame ingenious writer, to whom I am ſo much indebted in this inquiry, " ought we not to employ all the means in our power, and eſpecially ſuch as have been found ſucceſsful againſt other contagions, to eradicate from our country this inſidious, moſt virulent, and deſtructive diſeaſe? It does not ſeem to have been known among us more than 150 years, for Sydenham and Morton are the firſt Engliſh writers who mention it. Sir Robert Sibbald, phyſician to King Charles the Second for Scotland, ſays, in the year 1680, this diſeaſe had appeared ſo lately at Edinburgh, and was ſo little underſtood, that he could not venture to give any obſervations on the theory of it, nor on the method of treatment. ' Inter multos morbos, qui huic ſæculo originem debent, nuperrimè Febris obſervata eſt quæ Scarlatina dicitur a coccineo colore, quo cutis ferè univerſa tingitur. Hujus morbi non ita frequentes obſervationes ſunt, ut indè accurata ejus theoria tradi, et curandi methodus extrui poterit.—Pauciſſimi verò ex hac febre mortui ſunt.' " Before the middle of the laſt century, it had made its appearance in every populous town of North Britain, as well as England, and had extended throughout the greater part of Ireland. There are, however, in different quarters of the united kingdom, ſome diſtricts remote from any conſiderable

conſiderable town, and ſeveral ſmall islands, which have not been viſited by the diſeaſe, if we can truſt to the memories or traditions of their inhabitants. The above circumſtance affords a proof that the Scarlet Fever does not ariſe ſpontaneously in our climate (ſee page 284,) and that when produced, it is not communicable to any great extent through the medium of the atmoſphere, as was formerly ſuppoſed. Our endeavours to ſuppreſs it will be facilitated by the knowledge we at preſent poſſeſs of the manner in which it is diffuſed. Not only the perſpiration and breath of perſons affected with the fever communicate it to their attendants and viſitors, but the clothes, bedding, and furniture in the apartments of the ſick, are for ſome weeks capable of infecting thoſe who handle or uſe them. Infection is likewiſe retained in carriages employed to convey the ſick and convaleſcents, their nurſes, or relatives. Since there is not on this head any reſtraint by law, and but little from private feeling, ſome hundreds are annually infected by hackney-coaches, ſtages, ſedans, and hired carriages. Dr. Fothergill (page 28) remarks, that the ulcerated Sore-throat, in 1746, began at 'Bow, Greenwich, and adjacent places, ſeeming to ſpread from the river ſide weſtward over the whole city.' As the diſeaſe took the ſame courſe, when it was epidemical in 1786 (ſee above, p. 262,) ſome phyſicians have thought that the Scarlatina was, on both occaſions, introduced by means of infected goods brought from abroad. The diſeaſe may have been

ſometimes thus imported; but when it appears in the eaſtern part of the metropolis, it will be more frequently found to have originated from the large repoſitories of old clothes near the Tower, Eaſt Smithfield, and Ratcliffe Highway." *

In anſwer to this, we muſt firſt inquire, which of the contagions have we ſucceeded in eradicating from this country? and how we are to aſcertain the extent to which a contagion is communicable, when we are in doubt concerning its ſource, as often as it becomes epidemic, and when we find it ſpread in the manner deſcribed in the above extract? But it may be aſked, ſuppoſing we have not eradicated any contagion, is that any reaſon why we ſhould never attempt it? It is admitted that the diſeaſe is only kept up by its own contagion, conveyed in ſome form. What then are the means of prevention? Are thoſe ſufficient which have been hitherto propoſed? The ſame author gives us the account of one attempt.

" At Ackworth, in the ſeminary founded and ſupported by the Society of Friends, the ſcarlatina in 1803 affected 171 perſons, and continued there upwards of four months, although the greateſt exertions were made to arreſt its progreſs by keeping the infected ſeparate from the reſt, and alſo by ſtrict attention to ventilation, and to cleanlineſs throughout the houſe. Dr. Binns's account of the introduction of this virulent complaint among the ſcholars,

* Willan, on the Skin, p. 389, et ſeq.

ſcholars, and of the difficulty of eradicating it, cannot fail to be acceptable both to medical readers, and to thoſe who are intereſted in the proſperity of academies."

This account is certainly intereſting, inaſmuch as it teaches us not how the diſeaſe is to be avoided, but how difficult, if not impoſſible, it is to avoid it. The contagion was introduced by means which never were diſcovered, and the conjectures concerning which, are unſatisfactory to Dr. Binns who offers them. The children who remained in the ſeminary amounted to 216; of theſe, 184 were affected. This is a larger proportion than is uſually found ſuſceptible of ſcarlet fever in a given place where ſome whole families ſuffer. The mortality was 7, which is not a ſmall proportion, as the diſeaſe has lately appeared. Every means of ſeparation and fumigation were uſed: means which in other places have been found ſucceſsful.

" If, ſays Dr. Willan, infected clothing remain for ſome weeks in a full cloſe room, or locked up in cheſts, and ſold during an unhealthy ſeaſon, not only the wearers, but all who have intercourſe with them, are preſently infected, and contribute to ſpread the diſeaſe."—" During the laſt year of my attendance at the Public Diſpenſary, continues the ſame accurate writer, *I had reaſon to think* that a family in Wild Street, Lincoln's Inn Fields, was infected with ſcarlatina maligna, by clothes bought in Monmouth Street. More than 50 perſons in the adjoining houſes were ſoon affected with the diſeaſe,

diſeaſe, which afterwards traverſed Drury Lane, and ſpread by Long Acre, and the ſtreets connected with it, through ſeveral pariſhes in Weſtminſter. Infection is principally conveyed at day ſchools, which we obſerve in almoſt every ſtreet. They are much crowded, ill ventilated, and open to children without reſtriction, and without inquiry into the health of families from which they come. Some effective reſtrictions are, however, neceſſary with reſpect to theſe and other ſources of diſeaſe above mentioned, which, although they benefit individuals, endanger the lives of thouſands." *

This extract, joined to the account of the hiſtory of ſcarlatina at Ackworth, is enough to ſhow the difficulty of preventing the introduction of that diſeaſe, of aſcertaining the ſource from which it is introduced, and of arreſting its progreſs afterwards. The inforcing of reſtrictions on the ſale of clothes, and on the government of day ſchools, though certainly not inconſiſtent with civil liberty, when their object is the preſervation of lives, muſt at leaſt be conſidered as difficult undertakings. Till theſe and much more are accompliſhed, every parent, huſband, or wife, muſt feel uneaſy for ſuch of their connections as have not paſſed through a diſeaſe, which, to uſe the language of the ſame ingenious author, has ſo long been the bane of "ſchools and academies, which has blaſted the hopes of many noble houſes, and which in thouſands of families, by

* Cutaneous Diseases, p. 391 et seq.

by ſuddenly deſtroying a numerous progeny, has conſigned the deſtitute parents to anguiſh and deſpair."

When we hear of ſcarlet fever in a family, or in a neighbourhood, a temporary removal is ſometimes propoſed, and often with ſucceſs. It is rarely conſidered, that the parties thus removed, ſtill continue liable to the diſeaſe for the remainder of their lives, or till they have paſſed through it. Nor is it thought worth inquiring, whether the ſeaſon at which they fly from the contagion, is not the moſt deſirable in which they can expoſe themſelves to it; or, if females, whether their preſent ſecurity may not render the moſt intereſting period of their future lives, the moſt melancholy to their ſurviving friends.

All this may ſound threatening language; but after an anxious inquiry, ſuch, and ſtronger, if I could uſe it, appears neceſſary, to rouſe the attention of the public to a juſt conſideration of the laws of contagions.

We have ſeen by the extracts I have produced, chiefly from Dr. Willan, how fatal ſcarlatina has proved, when epidemic under an unfavourable form. This is enough to ſhow that thoſe who are attacked, or who are even liable to be attacked at ſuch periods, have every thing to apprehend. Nor have we any means of aſcertaining with certainty when to expect ſuch periods, nor of avoiding their effects.

If we impute the preſent mild form of ſcarlet fever entirely to an improved mode of treatment, we ſhall, I fear, be greatly deceived. When the diſeaſe was ſo new in Edinburgh, that Dr. Sibbald acknowledged the difficulty of forming a Theory concerning its nature or mode of treatment, very few, he tells us, died; and every honeſt practitioner will acknowledge the caſes he has ſeen, even in theſe days, which were marked with fatality from their outſet. By the ſame writer, to whom I have been ſo much indebted,* by every other authority, from events with which few families are entirely unacquainted, we learn not only that the diſeaſe has frequently attacked lying-in ladies, particularly thoſe of the higher and middling claſs, but that when it does occur under ſuch circumſtances, the chance of eſcape is very low indeed both to mother and child! This impreſſion has by many events been ſo ſtrong on my mind, that I rarely hear of the nuptials of a young friend, without an anxiety to know whether ſhe has paſſed through the ſcarlet fever! It is not neceſſary to mark the various ſources by which this contagion may be introduced at ſuch a time; but when the event has occurred at a remote manſion in the country, it is impoſſible not to ſuſpect the paraphernalia for theſe occaſions, prepared, perhaps, in the habitations of poverty, and firſt aired in the lying-in chamber. Whatever the

* Dr. Willan, on Diseases of London and Description of Cutaneous Diseases.

the cauſe may be, the effect at ſuch a period is too well known.

By this time, I truſt, the reader is convinced of the difficulty of escaping ſcarlet fever, and the danger with which it is ſometimes attended; we may therefore proceed to the queſtion of prevention.

Without interfering with the province of the legislature, we may at leaſt remark, that all regulations which are not univerſal, and enforced with indiſcriminate ſeverity, are not only inconſiſtent with the liberty of one part of the community; but dangerous to the whole. Whatever flatters us with ſecurity, without enabling us to judge how we are to eſtimate the degree of ſuch ſecurity, only leaves us more obnoxious to the evil, and leſs prepared for it when it arrives. Should the ſubject be taken up by the legislature, it is not likely that any laws will be enforced, without a patient inquiry into all the evidence which can be produced. Till this evidence is produced, and probably till meaſures are purſued in conſequence, we can only judge from the facts before us. From theſe I am not hardy enough, to propoſe to thoſe whoſe habits are ſuch as generally prevail in this country, any other ſecurity than paſſing through the diſeaſe. It may be ſaid that many eſcape through life. Many certainly do; but much fewer than are generally believed, becauſe many paſs through it with ſymptoms ſo ſlight as not to be ſuſpected. However this may be, it does not alter the queſtion of ſecurity; ſince no one can aſcertain his own want of ſuſceptibility

tibility but by trial. The queſtion with me therefore would be, how we ſhall paſs through the diſeaſe with the beſt proſpect of ſafety, and thus relieve ourſelves from danger, and our friends from anxiety?

There is one general remark, for which we are indebted to Dr. Willan, namely, that "ſcarlet fever exhibits during the ſummer months, a mild train of ſymptoms, ſoon terminates favourably, without producing any material affection of the throat. For ſome years paſt, it has generally been moſt virulent in the months of October and November."*—As the autumn of the ſame year (1796) advanced, he obſerves, "ſcarlatina, which is now extenſively diffuſed, has ſince the beginning of September aſſumed its more malignant and dangerous form."—"In this form the diſeaſe uſually proves fatal to infants on the 7th or 8th day."†—Again, in his Report for November, 1799, ſcarlet fever has increaſed ſince the laſt report, both in extent and the violence of its ſymptoms."‡ And in the following month, ſcarlatina has been attended with violent ſymptoms, and in two caſes [out of eight] proved fatal. Without offering any other authority, it may be taken as a law, that ſcarlet fever, though frequently very general, is mildeſt during the ſummer months. As the winter approaches it is more ſevere; a ſharp froſt prevents its extenſion, but renders the diſeaſe in ſubjects

* Diseases of London, p. 32. † Id. 41. ‡ Id. 229.

jects previously affected much more dangerous, producing gangrene, and all the other ſymptoms uſually termed putrid.

In this, however, as in every thing connected with pathology, there is always ſome uncertainty. It can be conſidered only as a general law, and on a ſubject ſo important it is neceſſary to leave as little as poſſible to doubt or conjecture. Would it not be deſirable that the managers of every public ſeminary ſhould publiſh weekly reports of the progreſs of the diſeaſe from the time it invades their eſtabliſhments, regularly ſigned by the attending phyſician? Of the weekly bills I ſhall hereafter have more to ſay. It is a truly lamentable conſideration, that on a ſubject of ſo much importance, we ſhould derive no information whatever from a ſource which, if not authentic, is now the only eſtabliſhed authority we can produce. It is true thoſe regiſters might be improved, but this can only be done by legislative authority. Many valuable improvements have been often ſuggeſted by men, who have ſpent the beſt part of their lives on theſe important inquiries. Their labours remain hitherto almoſt unnoticed, but ready to furniſh the ground-work of our future plans.

On the ſubject of extermination, nothing can with ſafety be urged, till we have ſome facts to guide us. No attempts that I know of, have been made towards the extermination of any contagion, excepting ſmall-pox. The inquiry ſhall therefore be reſerved, till we come to the conſideration of that diſeaſe.

CHAP. VIII.

OF THE MEANS OF LESSENING THE EFFECTS OF MEASLES, AND OF THE POSSIBILITY OF EXTERMINATING THE DISEASE.

MEASLES are generally conſidered more dangerous in their ſequel, than during their progreſs. If this is really the caſe, the mortality from the diſeaſe during the laſt year muſt have been much more alarming than it appears. The number of deaths aſſigned to meaſles for that period, within the bills of mortality, amounts to no leſs than 1386. How many were loſt in the ſequel by injury done to the conſtitution cannot be aſcertained. To eſtimate the numbers who paſſed through the diſeaſe by the proportion of deaths, we ſhall take the greateſt mortality that has ever been aſſigned in the metropolis. From one to three in a hundred is conſidered a large proportion. This is more than will appear by the practice of that branch of the profeſſion, who ſee the moſt of the diſeaſe in common life. However, diſpenſary practice ſhows a greater mortality from meaſles among the poor, than is generally known or ſuſpected. If we take the higheſt average of three in a hundred, on the whole, it will follow, that no leſs than 46,200 perſons caught the meaſles during the year 1808, in a population, the average number of deaths in which is not quite 20,000.

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This mortality from measles has not been confined to London. Accounts from many parts of the country are ſimilar; our intercourſe with the continent is not ſufficient to teach us the reſult of regiſters in Europe, but it is well known that the diſeaſe has committed great ravages in St. Helena and the Cape of Good Hope, whither it is ſuppoſed to have been conveyed with the packet.

The mortality from the measles in Madeira has exceeded any thing that was ever heard of from that cauſe in the ſame period. In Funchall alone, it is aſcertained that 700 people died of it in four months. The population of that city was eſtimated with ſome certainty at 10,000 before the flood, which deſtroyed more than 200 perſons, and nearly a fourth part of the houſes. It is probable, that the number of inhabitants has much increaſed ſince that event, though the re-building of the town muſt proceed ſlowly, in a country where all the materials, excepting ſtone, are procured from abroad. Even before the flood, houſes were ſcarce; the emigrations from Liſbon, the arrival of the Engliſh troops, the reſort of invalids, and the increaſed traffic, muſt have confined ſuch of the inhabitants as have not the means of paying extravagant rents. The fatality of the diſeaſe in Funchall, therefore, may be very much attributed to the accumulation of ſick, by the ſudden invaſion of a contagion, to which the inhabitants had been ſtrangers for at leaſt 25 years. That

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this has been a conſiderable cauſe, is further cōn-firmed by the mortality being ſo great among the inferior orders, though the contagion has ſpread through every claſs. It has never been exactly aſcertained how the measles were firſt conveyed to Madeira, yet there can be little doubt that it was owing to the baggage of the ſoldiery or their wives. From the time of its firſt appearance, it ſpread with the rapidity before mentioned over the town, and from thence over the whole island. It is ſaid no where to have ceaſed as long as an individual remained liable to it. Whether this is ſtrictly true or not, cannot be eaſily aſcertained: but if the number of deaths is correctly ſtated, and the inhabitants of Funchall are not greatly increaſed, ſuppoſing the whole to have gone through the diſeaſe, the mortality will be found in the proportion of 1 in 13!

Admitting ſome slight inaccuracy in the accounts, ſuch a viſitation is enough to keep any town on its guard, againſt the invaſion of ſuch a contagion, at a ſeaſon when they are leaſt prepared to meet it. As my inquiries are confined to London, I ſhall not pretend to ſay how the measles can be prevented in the metropolis. This ſubject muſt therefore be concluded like the laſt. Parents ſhould reflect ſeriously, whether it would not be ſafer to expoſe their children to the measles after a due preparation in a mild ſeaſon, than let them run the hazard of being ſeized, when leaſt fit to encounter ſo uncertain a complaint. It

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ſhould be added, however, that meaſles do not prove ſo dangerous to pregnant or lying-in women, as ſcarlet fever or ſmall-pox.

OF THE EXTERMINATION OF SMALL-POX.

Of all the contagions with which we are acquainted, ſmall-pox is the moſt marked. It is communicable by contact of the fluid formed in the diſeaſed parts, and applied to a ſound perſon. The property of this fluid is ſuch, that when diluted with water to a degree not yet aſcertained, the ſmalleſt known quantity of that water applied to the broken ſkin of a healthy perſon may excite the diſeaſe, and the air which has touched a diſeaſed perſon, or touched the matter from a diſeaſed perſon, diffuſed to a degree and conveyed to a diſtance not yet aſcertained, may excite the diſeaſe in a healthy ſubject who breathes it. Nor is there any climate, ſeaſon, or ſtate of the atmoſphere, in which ſmall-pox may not be communicated. Like the other contagions, its progreſs may be arreſted by the prevalence of a different epidemic, but this, in many inſtances, renders it more fatal to thoſe who ſuffer from it at ſuch times; and if the power of the contagion ſhould exceed that of the previous epidemic, the *mortality is truly horrible.*

It may be neceſſary to explain this laſt poſition more at large.

We have ſeen by Dr. Willan's remark, that though the ſetting-in of froſt will check the extenſion

ſtrange that no attempts ſhould have been made at its extermination? Before we accuſe our anceſtors of inattention, would it not be right to expect poſterity to inquire how *we* have ſo long ſubmitted to meaſles and ſcarlet fever? The firſt we have ſeen, has, during the laſt year, deſtroyed many more than ſmall-pox, and the latter is a continual ſource of uneaſineſs. Which of us does not recollect often to have heard a wiſh expreſſed that meaſles could be inoculated like ſmall-pox? Have not ſome of our ableſt phyſicians, nay, a celebrated ſchool of medicine, made attempts at this mode of anticipating that diſeaſe in the ſame happy manner as ſmall-pox was anticipated? Yet it is certain that meaſles is not conſidered equally univerſal as the ſmall-pox, and to make a compariſon between the fatality of the two would be abſurd.

The only mode of accounting for this apparent inattention to exterminating ſmall-pox, is by ſuppoſing either that thoſe who had the moſt influence felt themſelves ſecure, and were indifferent about the riſing generation, or elſe that they conceived the diſeaſe unavoidable. The latter is not only the moſt candid opinion, but was certainly encouraged by the faculty, who attempted by the univerſality of the diſeaſe to account for its contagious property, and its invaſion only once during life.

There cannot be a more remarkable inſtance than the above, how much men reaſon from the chain of events immediately under their own eye. The principal medical authors are uſually the inhabitants

bitants of very large towns; the ſame may be ſaid of the more active and wealthy part of the community, whoſe influence over the public opinion is the moſt extenſive. Both theſe reaſoned juſtly, as far as related to the ſcenes of their activity or reſidence; but never reflected that many, perhaps the greater part, of the inhabitants of villages or of conſiderable towns not ſupported by commerce or manufactures, paſſed their lives without ſuffering the diſeaſe. It was, indeed, a conſtant ſource of terror in thoſe places, and ſome proviſion was made, not I believe enforced by law, againſt its extenſion. "In remote ſmall towns, ſays Dr. Haygarth,* a peſt-houſe has been ſucceſsfully uſed, where the diſeaſe rarely occurs, and where it infects but few, and thoſe principally grown perſons. But in large towns, where the diſeaſe is *conſtantly preſent*, almoſt all the poor natives are infected whilſt children. If an infant be attacked and ſent to the peſt-houſe, the feelings of the mother would not ſuffer it to go alone in the moſt arbitrary government. If ſhe has other ſmall children, they would periſh at home without her aſſiſtance; they muſt therefore go to the peſt-houſe: unſurmountable embarraſments would ariſe if we ſuppoſe only ten ſuch families to be admitted at the ſame time." That the greater part of the inhabitants of the metropolis had the diſeaſe when young, may be fairly preſumed from the very few inſtances we have on

* Inquiry, p. 83.

record of perſons dying of the diſeaſe in advanced age. Their principal anxiety was, therefore, for the riſing generation; and the reflection of their danger, as it appeared to them unavoidable, muſt have affected them in proportion as they valued the lives of their offspring, whether from affection or the proſpect of future aggrandiſement.

OF THE EFFECTS PRODUCED ON THE PUBLIC MIND, AT DIFFERENT PERIODS, BY SMALL-POX INOCULATION.

It is univerſally known, that this practice was firſt introduced by a lady of faſhion. As an inhabitant of the metropolis, and one of that claſs of ſociety to whom the preſervation of their offspring is of the higheſt importance, ſhe could not be inſenſible to the advantages of inoculation. So little impreſſed was ſhe with any danger of ſpreading the diſeaſe, that her only apprehenſion of oppoſition was from the Faculty, who, ſhe conceived, might be jealous of loſing a lucrative branch of their profeſſion. When the art was yet imperfectly underſtood, the royal family, who are the firſt to quit the metropolis on the appearance of the plague, were among the firſt to ſhow the world that they knew of no ſecurity againſt ſmall-pox, as long as the conſtitution was ſuſceptible of its influence. But even after this high ſanction, the abſurd manner in which the practice was conducted for ſome time, retarded its general reception in London; and a provincial practitioner had the credit of firſt improving, ſo as

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to render it popular. The Suttons very ſoon eſtabliſhed houſes for the reception of their patients; but this ſeems to have been more for their own convenience and advantage, than for the protection of the public. For either the number of applicants, or their want of means, was ſoon ſufficient to preclude all caution; or elſe a kind of general conſent rendered it, in many places, unneceſſary.

In others there cannot be a doubt that much miſchief muſt have been done. But the practice was popular with thoſe who had the moſt influence: nor were theſe confined entirely to the wealthy; all the enterprizing young peaſantry of both ſexes felt themſelves relieved from a certain degree of captivity, by having paſſed through the ſmall-pox, without which no one at that time could find employment in the metropolis, nor probably in any of the larger towns. In the midſt of all this, complaints concerning the ſpreading of the diſeaſe muſt have been numerous. Few of them, however, appear in print, and thoſe few are only among ſuch as oppoſed the practice on every other ground.

At length Baron Dimſdale, who, till his journey to St. Peterſburgh, had been a provincial practitioner, propoſed a plan for a general inoculation under certain reſtrictions. At that time ſome eminent phyſicians in London were engaged in a diſpenſary for inoculating the poor in the metropolis. This of courſe produced a controverſy, during which, one of the diſpenſary phyſicians did not ſcruple to accuſe the Baron of a wiſh to engroſs

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the whole of inoculation by his propoſed reſtrictions. The truth ſeems, that in this, as in moſt other controverſies, both parties were right. The Baron reaſoned from what he ſaw in a country town, where the ſmall-pox appeared only occaſionally, and the phyſician, from the metropolis, which is never free from the diſeaſe, ſo that no one is ſafe for a moment whilſt he remains liable to it.

Whether this controverſy was attended to by the Britiſh public I am hardly competent to judge; but on the continent, the volume publiſhed by the Royal Medical Society of Paris for the year 1780, contains a paper on the ſubject from Profeſſor Roſe of Modena. In this, after the Profeſſor enveighs violently againſt ſmall-pox inoculation, aſſerting by authorities, ſomewhat indeed doubtful, that the diſeaſe had deſtroyed more at Modena ſince the introduction of the new practice than before, and concluding with the ſame expreſſions as uſed by the learned author mentioned at the beginning of this work. Dix-huit mille hospiteaux ont detruit la lepre en Europe. Cette partie du monde n'a quarantée de la peſte que par pratique ſévére des moyens capables d'arrêter la communication, & on ne prend aucune précaution contre la contagion de la petite vérole M. R. S. P. ann. 1777, 78, p. 88. This paper paſſed unnoticed, as far as can be collected from the memoirs, and the faculty of Paris continued to encourage inoculation as much as before.

CHAP. IX.

OF THE FIRST PROPOSALS MADE FOR EXTERMINATING THE SMALL-POX.

As no attempts were ever publiſhed for the extermination of ſmall-pox before the introduction of inoculation, we may preſume that what every one endeavoured to avoid, but found no ſecurity from, was by common conſent ſubmitted to, like other things, for which there appears no remedy. In other words, as we ſubmit at this time to ſcarlet fever and measles.

In the year 1784, Dr. Haygarth, at Cheſter, publiſhed his firſt "Inquiry how to prevent the ſmall-pox, and the proceedings of a ſociety for promoting general inoculation among the poor at certain periods, and *preventing the natural ſmall-pox* in CHESTER." His propoſals were not only benevolent but rational, and his ſucceſs induced him in the year 1793, to publiſh "A plan for the extermination of the CASUAL ſmall-pox from Great Britain." It is difficult to ſay whether we ſhould moſt admire his candour, diligence, the goodneſs of his intentions, or the little effect he produced on the public mind. The maſs of correſpondence he has collected will for ever remain a monument of each, and prove a valuable accumulation of facts as often as the ſubject is agitated. His firſt object was,

was, to aſcertain the laws of the ſmall-pox contagion; ſenſible, that if it could remain active for a period not yet determined; be conveyed to a diſtance not yet aſcertained, and by ſubſtances, the circulation of which could not be reſtrained; it would be too bold an undertaking to leave an individual, much leſs a nation, liable to the invaſion of ſo horrible a malady. To gain as much information as poſſible, he ſubmitted his MS. to the peruſal of others before he publiſhed, and inſtituted correſpondences not only throughout England, but over the continents of Europe and America. Inſtead of having the popular voice in his favour, he had to contend with prejudices, which might have daunted ſuch perſeverance as his own in a leſs benevolent cauſe. "A phyſician at Plymouth aſſerts, that ſmall-pox has been brought from London in a periwig. A medical friend at Cheſter, that the effluvia might be infectious for thirty miles." In a correſpondence with Dr. Waterhouſe, we hear of two caſes of infection from periwigs. In one of them, a phyſician, who changed all the reſt of his apparel, rode ſix miles, and afterwards gave the diſeaſe to a perſon in a room through which he only paſſed. In the other, the contagion floated acroſs a river 1500 feet broad, and affected ten out of twelve carpenters at work on the other ſide. A maid ſervant was infected by waſhing a floor two years after any patient with ſmall-pox had been in it. Dr. Haygarth finds no difficulty in ſhowing that much credulity is required in believing

believing theſe events, which may be more readily explained in a variety of ways. But his candour could not overlook, that if theſe people were not affected by the ſuppoſed means, it muſt have been by means of which they could not be aware, and conſequently, againſt which they could not guard themſelves. This is enough to ſhow the difficulty of avoiding caſual ſmall-pox.

Dr. Haygarth expreſſes ſome ſurpriſe, that his opinions were ſo differently received by two continental translators. Dr. de la Roche of Paris, expects little from any attempt at exterminating ſmall-pox, but encourages inoculation. Dr. Capel of Berlin, looks forward to this deſirable event; and to effect it, diſcourages inoculation altogether. Every one knows how cloſely the inhabitants of Paris are collected; and the number of large houſes, even of palaces, in Berlin, compared with the inhabitants, is almoſt proverbial. It appears, indeed, that the phyſicians of large or cloſely inhabited towns, could only expreſs their wiſhes, but felt unable to offer any decided opinion. Dr. Fothergill wiſhed the project well, mentioned it to every one, and would be ready to promote an inſtitution, which had for its object the baniſhment of ſo great a plague. Dr. Aikin ſays, "all the rich inoculate, and who cares for the poor." A phyſician of the greateſt eminence, both for rank and erudition, gives the following reaſon for his ſilence on the ſubject. "In London we have very few opportunities of ſeeing the ſmall-pox.

For

For the laſt 25 years the number of variolous patients who have fallen under my care, is very inconſiderable." Another diſtinguiſhed phyſician and author, in a large city ſays, "I have not ſeen ſix private patients in the ſmall-pox theſe 18 years; and about 7 or 8 in the hoſpital, where it crept in, nobody knows by what means.

The correſpondence of Dr. Haygarth with Dr. Waterhouſe is particularly intereſting, as it ſhows in a lively manner the ſuſceptibility of the human conſtitution to ſmall-pox contagion, in proportion as it is leſs accuſtomed to it; and accounts for the difference of his concluſions, in proportion as commerce and population had increaſed in the new world. "After all, (ſays he, with a candour which does him infinite credit) may we not both be right? May not the ſmall-pox operate differrently in the two countries?" "Have we not found that ſmall-pox rages with more violence in ſome countries than others? It has certainly almoſt exterminated the Aboriginals in and near the ſea coaſt, though they have the advantage from their mode of life, and freſh air, and no doctors.

I have introduced this very inconſiderable part of Dr. Haygarth's labours, partly to do juſtice to that meritorious author, and partly to ſhow ſome of my readers, that the wiſh to exterminate ſmall-pox is not new. It cannot be queſtioned that we have a better proſpect of that deſirable event, by the introduction of vaccination. Whenever that practice

practice becomes univerſal, there will be no ſubjects left for ſmall-pox; and at this time, ſuch as are ſatisfied with it, may ſecure themſelves and their children. But this is not enough, they muſt render even this operation unneceſſary to future ages, though in the mean time the offspring of a few obſtinate individuals ſhould be conſigned to all the miſeries of caſual ſmall-pox.

CHAP. X.

OF THE RECENT PLANS FOR EXTERMINATING SMALL-POX.

IT is not a little ſurpriſing, that in proportion as our means of protection from ſmall-pox are facilitated, our anxiety concerning its exiſtence ſhould increaſe. It muſt be allowed, all this is diſintereſted; but let us be careful how we deceive ourſelves. If our forefathers never attempted any thing of the kind, might it not be becauſe they were apprehenſive that they or their friends might be made the ſubjects of the experiments? If at this time, a conſiderable part of the community has agitated the queſtion with the beſt intentions, they ſhould at leaſt recollect, that thoſe who are the moſt intereſted in it, that is, thoſe who are not yet ſatisfied with vaccination, are the only oppoſers of any reſtrictions on inoculation.

Why, it is asked by many, *who till now* never thought on the ſubject, may not ſmall-pox be exterminated altogether? Such was the queſtion put to me by a practitioner ſo much older than myſelf, that I could not help asking him, Why he did not attempt to exterminate measles and ſcarlet-fever, which were ſo much more to be dreaded, inaſmuch as no improvement in our art has taught us how to leſſen their violence, or to ſecure the conſtitution from their invaſion? His anſwer was,

was, that he would be glad to exterminate both if he knew how. Does not then the ſame difficulty remain in the way of ſmall-pox? If it is ſaid the diſeaſe is only kept up by inoculation; what then keeps up the other two? What kept up ſmall-pox before inoculation was known? Or, why does it ſo often occur where we can trace no communication with a perſon under the diſeaſe? "Not only, ſays a zealous advocate * for the prohibition of inoculation, is ſmall-pox univerſal in its depredations, but its approach ſo inſidious as to render it almoſt impoſſible to be avoided. It has been aſſerted, that the ſmall-pox has been imported more than a hundred times in ſeven years into the channel, and twenty times in about ſix months, in the year 1800, by the channel fleet alone. If this were really true, would it not ſhow the abſolute impoſſibility of preventing the importation of ſuch a diſeaſe by any quarantine law. The error evidently ariſes from our ſeeing freſh men who come on ſhore, and catch the diſeaſe in the lodging houſes at the different ports, all the furniture of which is contagious to ſuch as come from a purer air. Scarcely an Eaſt India fleet arrives, but we receive a number of Laſcars into the Small-Pox Hoſpital. The number of American ſailors was formerly very conſiderable; at this time we have three in the hoſpital. Will it be ſaid

* See an anonymous Pamphlet, on exterminating ſmall-pox, preſented by Dr. Jenner.

ſaid that theſe men brought the diſeaſe with them to England?"

The ſame writer adds, "The grave itſelf deſtroys not the contagious principles of the ſmall-pox, of which many well authenticated proofs can be given."

Is there then a burying ground in London which may not at any time revive the diſeaſe, ſuppoſing the whole of the preſent generation to be vaccinated? Is there a lodging houſe or an old clothes ſhop, or a pawnbroker's, that is leſs dangerous? But it may be ſaid, the ſhutting up of burying grounds, the purification or even deſtruction of lodging houſes, the burning ſecond hand clothes, and all the articles of a pawnbroker, or any other ſhop-keeper, would be a trifling ſacrifice for ſo great a benefit; and by reſtraining inoculation, we at leaſt prevent one ſource of contagion.

Is there then any one hardy enough to propoſe that an experiment for purpoſes, however laudable, ſhould begin on the human ſubject inſtead of furniture, burying grounds, and other inanimate matter? Firſt, remove thoſe ſources of contagion, which, before the introduction of inoculation, rarely left any perſon ſix years free from the diſeaſe; and then, before you enforce your reſtrictions, reflect that you are only reduced to the ſtate of thoſe countries which had been for ever, or for a long ſeries of years, exempt from this calamity. Such are the nations who had never ſeen Europeans, or had ſeen them only after long voyages. Let us ſee whether

whether the ſecurity of ſuch is ſufficient to leave the inhabitants of the world's emporium at their eaſe, whilſt they or their friends remain ſuſceptible of ſmall-pox infection? The aborigines of the N. American coaſt, we have ſeen, have been almoſt exterminated by it. The inhabitants of New Spain loſt half their numbers when the diſeaſe was firſt introduced among them. In Quito alone, 100,000 were deſtroyed. Greenland was almoſt depopulated in 1733. In the Iſle of France, 5400 died in ſix weeks. It is well known that the ſettlements of the Jeſuits in Paraguay were principally reſtrained in their population by the ſmall-pox before the introduction of inoculation among them. All theſe, it may be ſaid, are places which Europeans had never before or rarely viſited, or only after long voyages. It may therefore be thought, that they were too inattentive to an evil with which they were unacquainted, or of which they had only an imperfect knowledge. But fortunately we have the example of a city, whoſe ſituation ſomewhat reſembled what London might be, ſhould every ſource of contagion be taken away. The firſt ſtone of St. Peterſburgh was laid only in the year 1721. Its plan is not yet completed. Not only are the houſes ſpacious and airy, but the climate affords the greateſt advantages for preventing contagion from abroad, or for arreſting it if imported. For five months in the year, all commercial intercourſe from abroad is prevented by the freezing of the Dnieper; for more than two months the

the twenty-four hours afford a conſtant day, and the climate is then ſo warm as to invite every means of ventilation. The deſpotiſm of the government precluded every difficulty of enforcing meaſures which we ſhall find were not unattended to. The following are the four firſt pages of Baron Dimſdale's account of his Journey to Ruſſia.

" It will eaſily be ſuppoſed that Ruſſia, in common with other countries, has experienced the mortality of the ſmall-pox in a very great degree. The City of St. Peterſburgh in particular,* though the greateſt precautions are taken, is ſcarcely ever free from it, the infection being conſtantly renewed by

* " The following precautions were obſerved when I arrived in Ruſſia, with a view to prevent this diſtemper from ſpreading. Where the ſmall-pox appeared, the families were enjoined to give immediate notice to the preſident of the College of Medicine, who is always a nobleman of diſtinction; if it happened to a perſon of rank, no reſtriction was laid on their choice of a phyſician, but all the family, as well as the phyſician who attended them, were ſtrictly ordered not to appear at court, until a proper time was elapſed ſufficient to ſecure them from the danger of conveying the infection.

" If the diſeaſe broke out in the family of a poor perſon, all that belonged to the houſe were confined at home; a plate was placed on the door to inform paſſengers that the ſmall-pox was there; a proviſion was made by the crown for their ſupport; ſurgeons were alſo retained and paid by government to attend on them, and give every neceſſary aſſiſtance; and they were themſelves directed not to intermix with others, in a manner that might endanger the extending of the contagion."

by the intercourſe which ſubſiſts with various parts of the world.

" The fatality of the diſeaſe, in an inſtance of a moſt affecting nature, ſeems more immediately to have given riſe to the great event which makes the ſubject of this treatiſe.

" A young lady, daughter to a nobleman of diſtinguiſhed quality and fortune, extremely beautiful in her perſon, and not leſs amiable for the accompliſhments of her mind, was contracted to a nobleman of the higheſt rank and ſtation in the Ruſſian court. A few days before the time appointed for the nuptials, ſhe was unfortunately ſeized with the ſmall-pox, which proving of a malignant kind, ſoon terminated in a loſs that was univerſally lamented.

" It was neither poſſible, nor was it material, to aſcertain how the infection penetrated the receſſes of the court; but it was obvious from this fatal incident, that neither rank nor fortune afforded any ſecurity againſt the ravages of this dreadful diſeaſe; and the whole court, ſenſible of the danger to which the Empreſs and the Grand Duke were expoſed, were filled with extreme ſolicitude for thoſe lives upon which the ſafety and happineſs of the empire ſo eſſentially depended.

" The danger to which theſe illuſtrious characters were expoſed, as well as the Empreſs's well known zeal for the welfare of all her ſubjects, gave birth to a propoſal for introducing the practice of inoculation.

" The

" The firſt perſonages in the empire determined to ſet the example, by ſubmitting to the operation; and a reſolution was accordingly taken by the Empreſs, to invite a phyſician from England, where inoculation had been moſt practiſed, and was generally allowed to have received ſome modern, and very conſiderable, improvements."

Such was the ſtate of St. Peterſburgh in leſs than fifty years after it was built, with every precaution againſt ſmall-pox contagion, and before inoculation was known in that city.

No further arguments, I truſt, will be neceſſary to ſhow that the ſudden interference with the practice of half a century is not an unimportant conſideration. Nor ought the reader to ſuppoſe that thoſe who are ſilent upon, or feel it their duty to differ from, the preſent popular voice, are leſs anxious for the extermination of ſmall-pox. The ſubject, it has been ſhown, is not new, though the former opponents of inoculation never applied to parliament for prohibitory or reſtrictive laws. Yet their caſe was, according to the preſent language, oppreſſive beyond any thing inflicted by Herodian cruelty. For if the diſeaſe was only kept up by inoculation, thoſe who refuſed to ſubmit to it were expoſed to all the terrors of the caſual diſeaſe. If any defence was then thought neceſſary, for what all were cenſured if they omitted, probably it might have been urged that the ſame means were open to all, and that the prudent ſhould not ſuffer for the inattentive; that even thoſe who

who complained, could only lament the anticipation of a diſeaſe to which they would have been always obnoxious, and which, as long as they eſcaped, would have been a perpetual ſource of anxiety.

The diſcovery of vaccination is certainly a moſt invaluable acquiſition, and thoſe who are ſatisfied with it, do right to recommend it to the world. Happy for themſelves and others, if they had been contented to recommend it by their example, and by the facility which the practice itſelf offers. If they go further than this, there is only one ſtep more they can conſcientiously take, that is, the forcing vaccination on *all* under certain penalties. I know there are many men whoſe intentions are perfect purity and benevolence, and who would ſtart at ſuch an imputation; but what elſe are we doing in prohibiting inoculation of ſmall-pox, or even in refuſing it to thoſe who are unable to make a pecuniary return, or temporary ſecluſion? If they do not ſubmit to vaccination, are they not without the chance of eſcaping ſix years, at moſt, many of them leſs than a month in the metropolis? Of eſcaping what? a diſeaſe which is ſaid to deſtroy one-ſixth of the ſufferers, beſides maiming, blinding, and diſfiguring many more. Do we know of any penalty heavier than an almoſt double deeimation and theſe additional torments?

No! it is urged by ſome; the only intention is to put ſmall-pox inoculation under ſome reſtrictions. Nothing can be more reaſonable; it is not

indeed eaſy to excuſe the omiſſion of ſo important a duty, from the period that the practice was rendered popular by the Suttonian improvements. But now that you have left it ſo long unreſtrained to the terror of the villagers, at leaſt ſtop to attend to the probable conſequences which may follow any haſty deciſion in the metropolis. Reflect, that the older your town is, the more numerous muſt be the ſources of contagion from the cauſes before enumerated, and at leaſt make ſome proviſion againſt theſe ſources, before you interdict a practice, which, till lately, you probably recommended by your advice and example.

But, it is ſaid, that by preventing inoculation, we leſſen one ſource of contagion. It is my misfortune not clearly to comprehend the meaning of this poſition. The queſtion is, do we afford any certainty for half an hour? Can we ſay to one newly arrived in the metropolis: You need not fear the ſmall-pox now, for there is no inoculation permitted but under certain reſtrictions? Recollect the fate of Miſs Joanna Cumberland, almoſt as ſoon as ſhe arrived in London. Recollect the fate of the Ruſſian Princeſs, in a newly built city, before inoculation was known, and where every endeavour was uſed to prevent the introduction of the diſeaſe. Recollect the fate of Queen Mary, conſort to William III. married at the age of 15, and probably from that time, reſident chiefly at the Hague; ſhe eſcaped the ſmall pox till her arrival in England

England at the age of 27. Five years afterwards ſhe was ſeized with the diſeaſe, and died.

In a word, is there the mortal who would live in ſuch perpetual fear? Is there an animal of any deſcription whom you would torture with ſuch perpetual anxiety? Can you aſſure the youth, full of health, and at an age when ſtrong exerciſe is commendable, and occaſional intemperance with difficulty reſtrained, that in ſuch a moment he will not be ſeized with a diſeaſe, which, under the moſt favourable circumſtances, often proves fatal? Can you aſſure the virgin, that her return from the dance may not prove the introduction to this dreadful calamity, after her eſcape from which, perhaps, ſhe would readily reſign her exiſtence? No, you ſay, but either of them may be vaccinated. Is this queſtioned? But does not the inference follow? Such are the penalties if you do not vaccinate!

It is far from my intention to conſider any thing here offered as deciſive of the queſtion. My only wiſh is, that it ſhould not be decided like one, every part of which is clearly underſtood almoſt without inquiry; that we ſhould be alive to its importance, or at leaſt, that I may not be accuſed of withholding whatever information the bent of my ſtudies, and the office with which I am honoured, may enable me to offer.

NOTE

NOTE TO THE INTRODUCTION.

IT would be a very curious inquiry for any medical man of leisure to trace the great variety of diseases which have at different times been included under the name of leprosy. Among the Jews it is evident that the term was very general in its application, though at different times it might be appropriated to certain well ascertained appearances. The leprosy described in the Levitical law, was not only a curable disease, but probably curable by the unassisted powers of the constitution. The patient was required to retire from society till he was pronounced by the priest to be clean; after which, and the necessary ablutions, he was re-admitted into the congregation. In another place* I have confirmed the conjectures of an ingenious writer, that this disease was probably the same as the yaws in the West Indies and in Africa. Whether in the present days it ever extends as far North as Egypt, I pretend not to say, but it is highly probable that it can never make any considerable ravages where slavery is unknown; that is, where men are tolerably covered, and their skin not much exposed, or much broken. It rarely appears among the Whites in the West Indies, excepting by accidental inoculation,

* Morbid Poisons, [illegible]

tion, and it is not with certainty ascertained, whether it is ever conveyed, excepting by actual contact, or the communication by the medium of insects.

There is every reason to believe that the leprosy described in Leviticus, was exterminated from the Israelites before their settlement in Palæstine. The only leprosy we hear of in the subsequent parts of Holy Writ was evidently incurable, and considered as such. When King Uzziah was discovered to be a leper, he was confined for the rest of his life in a lone house, and a successor appointed. Naamin, the Assyrian Captain, was recommended by the King his master to the King of Israel, that he might be cured by the miraculous agency of Elishah.

The curing of a leper appeared something more than he could expect, even from a prophet so highly favoured; and the King expressed his uneasiness lest the only intention of the Assyrian might be a pretext for war. It is enough to say that Naamin was cured by miraculous agency, to show that no other means were known.

It is, however, worthy of remark, that the Assyrians were under no apprehension of contagion from the disease, as Naamin constantly attended the King, even in his devotions. But Elishah seemed to entertain a different opinion, and refused the least communication with a leper. He sent his directions without seeing the patient, and when the latter returned cured, but without having undergone the necessary ablutions, he was dismissed with a short reply to his expressions of gratitude, and even to his inquiries concerning a scruple of conscience.—"Go in peace."

The lepers, in the New Testament, were evidently considered incurable, and it appears that they were not permitted to be seen in the towns, but associated together

together without the walls. Four of these applied to our Lord afar off, with a loud voice; they were cured by miraculous agency, and ordered to present themselves to the priest.

It appears by these circumstances, that after the extermination of one kind of leprosy, the same customs were preserved in a certain degree with regard to another which still remained. The only difference was, that as the patients were never found to recover from this last, which was probably the true elephantiasis, their seclusion was for life.

Elephantiasis is known in all warm climates, and in many considered as contagious. Yet the lepers, or lazars, as they are in some places called, are often suffered to wander without any restraint. Such is the case in the island of Madeira, where these unhappy sufferers are among the common beggars, and often the most hideous are selected to excite charity from new comers. They have indeed a hospital, and a small allowance from the government.

It has been said, that after the expedition of the Crusaders, lepers were so common throughout Christendom, that no less than 15,000 Lazarettos were erected for their reception. By this great caution it is supposed that the disease was exterminated. To suppose that elephantiasis ever was general in Europe, would be to suppose a change in the human constitution subversive of all physical laws. We know from Celsus, and also from Galen, that the disease, if not unknown altogether in the latitude of Rome, was at least so rare, that those authors were unwilling to describe it.

Aretæus, who is supposed to have flourished in Cappadocia, is the first writer that entered into any detail in describing elephantiasis; he considered it, however,

ever, contagious, which probably prevented so close an intercourse as was necessary to render his description accurate. When the syphilitic poison first appeared, much inquiry was made in the Italian schools to determine whether that disease could be discovered in the writings of the ancients. This produced a more minute examination of all their descriptions of leprosy, and it was now discovered that the leprosy of the Greeks was different from the leprosy of the Arabians. The latter they perceived was the elephantiasis of the Greeks, an incurable disease, and almost, if not entirely, unknown among themselves.

Elephantiasis has never been described by any author as a disease that he had seen in England. Thro' the politeness of Dr. Baillie, I have been consulted for two cases which he met with in his practice, both from the East Indies. One of these remains at this time in a society to which she is no way injurious, and which contributes to soften the misery of her unhappy fate.

The author of the letter to Mr. Perceval, informs us, that he had been eye witness of the ravages of this disease in Ceylon, yet he remains unifected. May I add, that in the receptacle for lazars, in the neighbourhood of Funchall, I passed the best part of several days, examining without any injury to myself, the disease in all its stages.

All this is, I trust, enough to show that the disease for which 15,000 Lazarettos are supposed to have been erected in Europe, was not elephantiasis; Lepra græcorum would be too trifling to attract general notice.

At one time, I conceived these receptacles must have been for small-pox, and that they had gradually fallen into disuse, as it was found that the disease affected the same person only once during life. But as some

some of the lepers were obliged to enter with all their goods, moveable and immoveable, it seems to follow that they were to remain for life.

In order to comprehend the nature of these establishments, we must be better acquainted with the history of the order of St. Lazarus, from its first erection. There is some dispute among the writers on this subject, whether this order was the same as that of St. John of Jerusalem. I pretend not to form any decision on a question, which nothing would have induced me to examine but the present Inquiry. It however appears by the author of "*Histoire des ordres religieuses*,"—who maintains a contrary opinion, that the origin of each was similar, that is, a factory of Italian merchants had erected, at a very early period, a chapel, and afterwards a hospital, in Jerusalem. The last, principally for the relief of pilgrims and poor sick, who came to visit the holy sepulchre. When the crusading expedition commenced, this hospital was soon found necessary for the wounded soldiers. By degrees an order of knighthood arose, which was divided into soldiers, ecclesiastics, and sick. The lepers were to be attended by lepers, and, what is very remarkable, the master of the order was to be a leper. This might lead us to suppose, that small-pox was included among the descriptions of leprosy, and that it was found necessary, that those who attended the sick, as well as the master of the order, who was to govern the whole, should not be liable to the disease. These conjectures may appear bold; but let those who think so reflect, that we have no records whatever, to afford us any information concerning the first introduction of small-pox. This reflection, if it does not authorise, at least may be said to invite conjecture.

The Knights rendered great services to the Christian cause, not only in Palæstine but in Europe, after their expulsion from the East. In the year 1253 they petitioned the pope to permit them to chuse a sound master, as all the leprous Knights had been destroyed in Syria. The pope not only permitted this, but gave them many other privileges. Clement IV. ordered, under pain of excommunication, that whenever the Knights of St. Lazar should require it, every prelate should lend his hand to force a leper, with his goods, moveable and immoveable, to be under the care of the order. This may be one way of accounting for their immense riches. Besides this, they received great immunities from the different princes.

In 1490 the pope incorporated this order with the Knights of St. John of Jerusalem: but they remained distinct in France, in which country it appears that the order existed till the revolution, under a vow of taking the charge of wounded and sick soldiers.

What the nature of our establishments in England was it is difficult to say, but almost all the bequests which are preserved in favour of the Burton Lazars, mention *fratribus sanis et leprosis*, and some of them *militibus*. It seems probable, that none were admitted into the community but those who took the vows. Stow has a chapter *of leprose persons and lazar houses*. In this he first refers to the Levitical law, next to a decree in the ecclesiastical court, passed in the year 1200, the second of King John, by which, according to the Lateran council, when so many leprous persons were assembled as might be able to build a church, with a church yard, to themselves, they might erect such a church, provided it should not be injurious to the old churches, and also that they should

should be excused paying tythes of their gardens, or increase of cattle.

"I have moreover heard, continues he, that there is a writte in our law de *leproso amovendo*, and I have read that King Edward the Third, in the twentieth year of his raigne, (about 1337 or 8) gave commandment to the mayor and sheriffes of London, to make proclamation in every ward of the city and suburbs, that all leprose persons inhabiting there, should avoid within fifteen days next, and that no man suffer any such leprose person to abide within his house under paine to forfeit his said house, and to incur the king's further displeasure. And that they should cause the said lepers to be removed into some out places of the fields, from the haunt or company of sound people, whereupon certain lazar houses as may be supposed, were then builded without the city, some good distance; to wit, the Lock without Southwarke in Kent Street; one other betwixt the Mile-End and Stratforde, Bow; one other at Kingsland, betwixt Shoreditch and Stoke Newington; and another at Knightsbridge, west of Charing Cross. These four I have noted to be ereeted for the receipt of leprose people sent out of the city at that time."

The only one of these houses now remaining is the Lock near Hyde-Park. Those of Kent Street, and of Kingsland, have been consolidated into St. Bartholomew's Hospital, which has a ward under the name of *Lazarus* for the reception of the same objects as the Lock is now confined to. Of the fourth, at Mile End, I can learn no particulars. I have heard Mr. Pott speak of the time, when the worst kind of head-cases, as he said they used to be called, were sent to Kingsland. That building still remains

mains adjoining the turnpike, and is converted into a manufactory, the chapel only being preserved for its original purposes. By all this it would appear, that leprosy was a term used for any severe cutaneous disease, or foul obstinate ulcers, which the ignorance or indolence of medical practitioners might chuse to confound under one common name, and which afterwards, for many years, acquired a different appellation. This is confirmed by a passage in Archibald Pitcairn who expressly tells us, *Lepra autem ante famam morbi Neapolitani hydrargyro cessit*; NOMENQUE NUNC AMISIT.

But these establishments were quite distinct from those which were under the direction of the religious orders, and accordingly, most of the latter were seized by Henry as church lands, whilst the former exist in some form to this day, as charitable institutions.

I have taken much pains to discover the passage in Mathew Paris, in which he mentions that 18000 establishments for lepers were erected in different parts of Christendom. But all my diligence in research as well as enquiries of others have been insufficient. The only thing I have discovered that bears on the question is, that the Templars had 9000 manors, and the Hospitaliers 19000 in Christendom, besides other emoluments; yet, with all this, in the year 1244, they petitioned for assistance by cicular letters among the Christians, to enable them to build a fort for the protection of the Holy Land against the Saracens. The Christians, however, calculated that each manor might at least send a single soldier completely equipped to Palæstine. This and the recollection of the perpetual quarrels between the two orders, and their ill behaviour in other respects, determined

mined Christians not to pay any regard to their application for assistance.

Whether these *manerii* were any thing more than freehold property, however inconsiderable, I leave to be determined by the lawyers; but by a reference to the various bequests and endowments to be found in Mr. Nichols's "Appendix to the Burton Lazars," it will appear, that many of their possessions in land were inconsiderable.

The nature of the disease which constituted a leper, appears to have varied according to the country in which the term was used; Lorry has some good remarks on this subject. After observing how little was known of the true Elephantiasis or Syrian leprosy, he adds, "Auctores qui in regionibus borealibus scripserunt lepræ nomen multis etiam dederunt morbis cutaneis." The number of lepers he tells us, on the authority of Raimond, was so much increased after the holy war, that 1040 establishments were raised for their reception in France, of which only the names are left, the places being empty. *Imo equestris ordo apud Gallos iis inserviendis natus, ad alios usus postea ob inutilitatem detortus est.*

I leave it to others to unravel all this obscurity. But so much is certain, that elephantiasis never could have been common, if at all known, in England; that in the countries where it is most common, its contagious is much less certain than its hereditary property. That the term leprosy was given to most cutaneous diseases not otherwise designated, and that all nations are more infested with such diseases in proportion as they are poorer, or have less inducements to cleanliness.

The only instance I have met with of any description of the disease, in a legal sense, is in a passage

of

of Rymer's Fœdera, referred to by the learned judge. In this it appears that Joanna Nightengale, of Brentford, was accused by some of her *good natured* neighbours of being a leper. A writ was issued, by which the king's physicians were to examine her. In this case, there was only one mode of proceeding, namely, to search for authorities; and by these they found, that Joanna did not come within the description of such as had been proscribed in other countries. If any authority could be produced of a person coming under the description required by this decision, it must then be allowed that elephantiasis has been known in England.

It is hardly credible, how little Lexicographers are aware of the importance of words. It cannot be necessary to observe that the term *Lazaretto* is Italian. In another place * I have remarked, that the *Della Crusca* Society has set many of the philosophers in Europe at variance, by their arbitrary explanation of the word *pellicella*. A similar inattention seems to have had its effect in the word Lazaretto. Antonini, who professes to follow that learned society, translates the word as it is now used in England and France, that is, a deposit for men or goods suspected of conveying the plague. He gives the Latin word *Lazaretum*; whether coined at the same mint I pretend not to determine, but in an Italian and English Dictionary, published in London in the year 1611, the word Lazaretto is translated an *Hospital for sick folks*. Of this kind, it is most probable, were many of the Lazar houses on the continent, or rather the houses under the religious order of St. Lazarus; and the union of that order with the Hospitaliers, is a further

* In a Paper on the Acarus Scabili, read before the Royal Society, and published in "Morbid Poisons."

further confirmation of the same. If these remarks appear bold, the reader will make some allowance for the trouble it costs to reconcile authorities, by which we expect only to be instructed. In a few years an old dictionary may be worth its weight in gold.

NOTE TO PAGE 4.

"The Sweating Sickness."

Caius, the only English physician who gives any account of the *Sudor Anglicus*, confounds, like many modern writers, the term epidemic with contagion. His definition of the latter gives us no idea of a disease conveyed from one person to another. "*Omnis enim incidens contagio aut est ratione temporis præter naturam constituti aut natura loci male affecti aut iis que loco accidunt.*

Van Swieten, after complimenting the English physician for his *optima descriptio*, adds, *celeri contagio per integras nationes dispergebatur.* Yet Caius says the disease was confined to the English, who when seized with the complaint in other countries, did not communicate it to the inhabitants, and that foreigners in England were not affected. In these opinions, however, he was partly governed by his own theory of the causes, which in his opinion predisposed the constitution to the disease. Professor Gruner has, with immense industry, collected all the writers on Sudor Anglicus, and calls it *Ephemera Catarrho epidemico persimilis.* He has added what he calls *Itinerarium Sudoris Anglici*, in which he traces it through most of the northern regions; and concludes the whole with the following remark, *Sic Sudor Anglicus* CONTAGII EXPERS *varie in variis locis grassatus.*

It

It is not less remarkable of this disease, that, contrary to the true plague, it affected the wealthy as well as the poorer class. But this was probably in crowded districts. Salop, the seat of Caius's practice, still retains all the marks of a crowded walled town. In London the mayor perished, but I do not recollect that it affected any of the nobility; Caius, indeed, says, it affected the peasantry: but this might have been from their resorting to the towns, or from their confined mode of living. Lord Bacon informs us, that it began on the 21st of September, and had so entirely ceased before the end of October, as to be no impediment to the coronation which took place on the last day of that month. This is about the period of an Influenza.

NOTES TO CHAP. I.

"*Page* 7, *Endemic and Epidemic.*"

In order to render the work as little complicated as possible for the general reader, I have made these two the generic terms, which is supported by the more accurate Lexicographers; *nam,* Το ενδημον *est, quod in populo,* επιδημον *vero quod vagatur per populum, grassatur et populatur.* Ενδημος *enim* νοσος *potest esse, citra aeris vitium.* Επιδημια *non potest.* Van Swieten remarks on this passage from Scaliger, *Si ergo loci natura et situ morbi oriantur, illorum causa perennis manet semper que adsunt et dicuntur* ENDEMII *si autem quodam tempore tantum regionem pervadunt* VOCANTUR EPIDEMICI. Here it is evident that this industrious writer, as soon as he leaves his copy, becomes confused. Agues may be said to arise *loci natura,* yet they are not always present. The true endemic diseases,

eases, if not the effect of climate, are I suspect, for the most part, the consequences of some hereditary predisposition, strengthened by repeated intermarriages in confined circles. Those which arise from soil, are strictly speaking ἐπιχώριοι. I trust, however, the terms I have used in the progress of the work, will be sufficient to mark every necessary distinction.

NOTE TO PAGE 12.

" It is probable, that this fever would never have been thought contagious."

It is wonderful how men are misled by the first appearance of events in matters the most important. An ingenious young physician expressed his surprise at my opinion, that typhus fever was not infectious; and to prove my mistake, urged, that when that disease had invaded one of the wards of the Edinburgh Infirmary, many of the students were infected in spite of the most careful ventilation. It is well known that at that University, the students are not confined to the colleges, but live among the inhabitants of the town. It was therefore easy to ascertain the question, by learning whether the families with whom the sick students boarded were infected. This it appears was not the case in a single instance.

A similar strongly marked and well authenticated history, is preserved by Van Swieten.

Longe mirabilius est, quod apud *Heisterum* legitur, qui & fide dignissimus est, & vivos rei hujus testes citat. Anno hujus saeculi undecimo *Altdorfii* incepit grassari febris acuta continua, quae, licet non

 haberet

haberet pessimam & malignam indolem, tamen nec mitis vocari poterat. Morbus solos cives Academicos invadebat, caeterum neminem, licet cives Academici per urbem dispersi habitarent, & eodem victu ac aëre cum reliquis urbis incolis uterentur. Unde vocabatur *Febris universitatis*. Imo universitatis Typographus, qui remote a Collegio habitabat, una cum suis famulis, sive operariis, affectus morbo fuit, dum alter Typographus, aedes collegio propinquiores multum inhabitans, cum tota familia manebat immunis a morbo. Cum autem de hoc morbo Academico rumor increbresceret, quidam ex Norimbergensibus filios suos domum redire jusserunt; qui tamen eadem febre apud suos decubuerunt, & aliqui ex hoc morbo mortui sunt. Mirum praeterea hoc erat, quod, dum Professores morbo corripiebantur, proles illorum, & reliqua familia, eodem malo afficiebantur pariter, studiosi vero aegrotantes eodem morbo non inficiebant cives, apud quos habitabant.

Dum haec perpenduntur, optimum videtur, cum *Sydenhamo* fateri, quod hi morbi *a secreta atque inexplicabili aëris alteratione hominum corpora inficientis gignantur, neque a peculiari sanguinis & humorum crasi omnino dependeant, nisi quatenus occulta aëris influentia dictis corporibus eandem impresserit. Hi, durante arcana illa aëris constitutione, nec ultra, pergunt lacessere. Epidemici dicti sunt.*

Had Van Swieten been aware of this law of infectious atmosphere, he would not have introduced this history with such expressions of wonder, nor have added his remarks at the end, on the inexplicable arcana of epidemics.

NOTE

NOTE TO CHAP. IV.

" P. 28, *There are certain neighbourhoods.*"

I have been told, but I know not on what authority, that those receptacles of the wretched in the old streets of St. Giles's, are kept up because they procure a large rental to some noble families. More probably, they are on long unexpired leases. In either case, it may be fairly urged, that the poorest must find some shelter. But may not a commission of respectable house-holders be appointed, assisted by a medical gentleman accustomed to visit such retreats? May not a small fine to the parish be required, as a licence for keeping houses, in the rooms of which more than a certain number of persons are admitted promiscuously to lodge? Before all things, let an inquiry be instituted concerning the mortality in these places, and even in individual houses, or rooms. Where there is reason to suspect a concentrated degree of infection, proper means should be used for the purification of such a house, before the commissioners are permitted to enter it; and the room or house may be barricaded, if the owners refuse to white-lime the whole, and wash every part of the furniture. A receptacle is already open for those who are affected with fever from such a cause, and proper caution is taken, that such patients as recover, shall not return into the world with their infectious apparel.

" *Page* 29, *Ready-made linen.*"

It may be thought by some, that to encourage this apprehension concerning ready-made linen, may prove injurious to an industrious class of females. Many are very anxious that female labour should be well paid. The intention is laudable, and sometimes well directed;

directed; but it should always be recollected that a female manufacturer is rarely a good wife or a good mother. Nothing fits a female so much for those offices, which Nature teaches her to look to, as that habitual attention to cleanliness and order, which is required of servants in well regulated families. I doubt not that it was formerly the custom in England, as it is now in most other countries, for the wealthy to have many more female servants than are necessary. The time not employed in domestic business, was probably engaged in spinning; hence the general term spinster for every single woman. Our machinery perhaps would render this employment unprofitable; but I never knew a family that did not find the advantage of a young supernumerary female, under illness and many other occurrences, during which the presence of a stranger is often particularly irksome. I am not now speaking of that class of dress-makers, whose occupation requires, and ought to furnish, the means of a comfortable existence. But it were to be wished, that ladies who resort to ready-made warehouses, and often fancy they are giving employment to the industrious poor, would reflect, whether they would not serve the interests of that class better, by protecting a young female, whose habits might be formed to order and propriety as well as industry. I am aware that many well intentioned ladies feel a dread of such responsibility: but this arises from expecting too much; from converting protection into something bordering on adoption; an error often painful to one party, and injurious to the other.

NOTE TO CHAP. IV.

"We owe our security to the meliorated condition of the labouring class."

When we reflect on the labouring class of society, on account of their expensive clothes or furniture, we are little aware how much we are mistaken. What Adam Smith learned with so much study, and taught with so much accuracy, namely, the difference between money expended in productive or unproductive articles, is practically understood by them.

When a new gown is purchased, the gratification of appearing in it is not the only consideration. A rainy day is held in contemplation, when this may, with the pawnbroker, furnish a temporary supply. It is far from my intention, to encourage a habit which enriches an individual at the expence of a poor neighbourhood; but this must be considered as a state somewhat above that profligate inattention, which consumes or wastes every thing as it is acquired. It is an evil that soon remedies itself; and after a time, nothing less than the imperious necessity of contributing to the box,* is considered to be a sufficient excuse for borrowing on terms so disadvantageous. It is soon discovered too, that with a better education, less expensive resources with a more elevated degree of amusement might be acquired, and even opportunities might have been seized, of rendering industry more productive. This wish is transferred to the offspring, and a new cause of economy arises. All this is well understood by those who have attended to it, and to others the subject must have been tedious before now; I shall therefore dismiss it with a few short remarks.

As we cannot expect perfection, and as most improvements

* Benefit Club.

provements are slow, it becomes us rather to be flattered than dissatisfied, when we see those whose situation is inferior to our own, endeavour to imitate us. Let us reflect, that we feel a similar inclination to imitate those above us, and that our constant advice to our juniors, is to court the company, and study the manners of their superiors. Above all, let us reflect that this ambition can only lead to greater diligence, in order to accomplish the object in view, and that the person who never looks forward to the improvement of his condition, loses every motive to diligence beyond the support of his existence, or the immediate gratification of his appetite.

This leads me to consider another mistake of which some of the best people are often accused, I mean the habit of looking too closely after those whom they assist. Those visits to cottages, which are so much applauded by some, will be often misinterpreted, and are rarely productive of good. I am not speaking of that benevolent notice with which it becomes all to treat their inferiors; but, under circumstances of distress or illness, it would be adviseable that such offices should be confined at first to the Clergy and the Faculty, who are more habituated to such places, whose immediate duty calls them to it, and who are the proper almoners of others. At the same time it is not only unnatural but dangerous for the inmates to desert their sick. Instances have occurred in which those who have been long accustomed to an impure air, when too suddenly removed into a pure atmosphere, have been seized with the disease they have fled from, whilst others who remained have escaped.

But enough has been said to show, that in proportion

tion as poverty and its attendant calamities are lessened, this source of epidemics will be lessened. Whenever it is ascertained to exist, the first business should be the immediate desertion of the house or apartment. Happily the sick are so far from being injured by removal at any period of fever, that nothing tends so much to recovery. Even a change of every covering, and a complete ablution in warm or cold water, are productive of further advantages. All this should be done, if possible, by those who have already taken charge of the sick. The apparel of these attendants should be changed, and themselves washed also. When all this is carefully accomplished, there will be no danger of contagion from the diseased subject. The furniture and apartment must be treated as before mentioned.

If I have said nothing on this occasion about fumigations, it is because I should be unwilling to trust to any, unless they were used to such a degree as would be inconsistent with the safety of any person who remained in the apartment. If every person is removed, a short but ample ventilation will render the place safe for any one to enter long enough to construct charcoal fires, and to lime-white every part, whether wood or wall. Till all this is done, and the apartment is afterwards dry, it will not be safe for many to remain in it for a length of time, nor for an individual to sleep in it.

Hitherto, all we have said, refers to the conduct and management of individuals, for it cannot be questioned, that when governments interfere in matters of this kind, there is always danger of their doing harm. The true spirit of inquiry, is in a certain degree interrupted, for the strong arm of power, and even its influence, if ill directed, must be injurious. But if governments

vernments should be careful how they interfere, even when their whole attentions are directed to the public protection, much more should they be careful how they enact laws, the effect of which must prove directly contrary to such intentions. The increased duty on window lights, in small houses, is a serious injury, inasmuch as the exclusion of light is the exclusion of air.

It is also impossible our Rulers can be aware how much they increase the sources of infectious atmosphere, by the heavy duty imposed on coals in the metropolis. All heavy duties operate to the disadvantage of the consumer, much beyond the mere sum imposed. They enable wealthy capitalists to engross the market, and thus lessen that competition which is always serviceable to the public. There is not a poor person, during a severe winter, who would not prefer the luxury of fuel to that of food, even when he feels the necessity of both. Besides that, there is no means of preserving the air of their apartments at all comparable to the constant renovation which a fire produces; it is certain that warmth contributes greatly to prevent the generation of this infectious atmosphere. This is well ascertained by the frequency with which such diseases occur in cold climates compared with warm. Add to this, the greater facility with which clothes are washed and dried; and above all, the greater inducement the husband has to return home, instead of repairing to a haunt in which he is sure of a good fire.

NOTE TO CHAP. IV.

"*Page 29, Numbers who never saw each other before, are lodged in the same room or cellar.*"

A gentleman in considerable practice in Bloomsbury, assured me some years ago, that there rarely

was

was a jail delivery without the introduction of typhus fever into the work-house. The acquitted prisoners often begged sufficient to procure themselves a lodging in some street in St. Giles's. From hence, on account of illness, the parish found it necessary to remove them to the work-house. All these inconveniencies are doubtless in some degree lessened; but the source of them should be removed.

Within the district of the New Finsbury or Central Dispensary in West Street, formerly Chick Lane, are several alleys between the North-west angle of Smithfield and Fleet Ditch, which is at that place an open stream, fairly entitled to its name of the River Fleet.

This part of the town having escaped the great conflagration, has, from its obscurity, met with no subsequent improvement. It is the only place in which I have met with typhus fever. Several ignorant Irish, on their first arrival in London, have been seized in succession. It is to be regretted, that the parish officers, who are by no means inattentive to the welfare of the poor, have not sufficient power to correct so serious an evil.

NOTE TO CHAP. VI.

"*Page 45, If they are careless of contagion from a diseased subject, they are not ignorant that certain places are pestilential at certain periods.*"

In confirmation of this, I shall transcribe from Dr. Russel the following conclusion to the case of an Arab.

"His wife, (says that truly candid and accurate writer) acquainted me that she suspected he had contracted his illness in a Keisaria in the neighbourhood which he used to frequent, and where several persons

still lay sick of the same distemper. This information confirming what I had before heard, I sat out for the Keisaria, which was situated *under the castle*, at a little distance from the horse market. It was inhabited chiefly by Arabs, who constantly resided there with their families, and got their livelihood as daily labourers, under the masons, terrace makers, and white-washers."

By this passage, it is evident that the woman was thoroughly aware of the pestilential property of certain places, and probably, that she had no suspicion of any contagion attached to persons. It was not any individual that she conceived had affected her husband, nor does she appear to have had any apprehension of being infected by him.

When Dr. Russel visited the Keisarias, he found that of more than forty people who had been seized with the disease, after the 19th of March, only one remained alive.

It will perhaps be asked, why these people do not leave their habitations on the appearance of the disease? We have seen before that they are expressly enjoined not to desert their sick. But it is not peculiar to the Muslemans. Dr. Russel mentions instances of Jews and Christians who remained with their sick relatives in pestilential situations; and it seems doubtful whether it is safer, after a certain time, to continue in such an atmosphere or to be removed. Dr. Russel, with his usual minuteness, gives us the history of a christian family who remained at home, and five were successively attacked with the plague, (Appendix, p. xciv); the disease proved fatal only to the first. We have seen before, that flight, after a certain time, is no security; and there is much reason to believe that to those who are seized at a distance from home, the disease is more generally fatal than

to

to such as remain. It will at least be admitted, there are few instances of so large a proportion of fugitives attacked with the plague, and recovering, as four in five. Diemerbroeck has, from different authorities, preserved several cases of fugitives who were seized a considerable time after their arrival at healthy districts. Two children sent from Nimeguen to Gelders, both died of the plague two months afterwards, without affecting any one in the latter city. About the same time the father, mother, and another son were seized at Nimeugen, the seat of their residence and of the plague. The mother recovered.

Bacon, with his usual sagacity, had ascertained all these facts relative to the progress of the plague; and had he directed his whole attention to such pursuits, there cannot be a doubt that he would have assigned a more rational cause for them; or, to speak more according to his own rules of induction, that he would have "traced the simple actions with such accuracy, as to detect the law." For want of this he imputes our escape from the plague rather to *good fortune* than to a proper attention to our quarantine laws; and in another place, "the plague, says he, is noted to go in a blood, rather than from stranger to stranger." Nothing is more probable than that a number of relations, living in different parts of a town, should meet at the same place; and if this should be a pestilential district nothing is more reasonable than to expect that they should be afterwards seized with the plague about the same time.

It is evident by Diemerbroeck's previous language, that these accidents after removal, happened principally in the advanced period of the epidemic. "In principio morbi a contagio plurimi inficiebantur; *postea* vero *tunc* æque inficiebantur qui contagiosa & infecta

infecta loca fugiebant, atque alii qui indiscriminatim ægros & sanos adibant." It is not difficult to see why those who are seized with the plague in a purer air, are less likely to recover from the disease; higher health, which may be the consequence of removal, is unfavourable for all acute diseases. Those who remain in the seat of the plague are, probably, in reduced health from the air they are breathing; every removal should therefore be early, and not to so great a distance as to produce a sudden change in the constitution. The removal of the sick with their inmates, may even prove advantageous to both. It is much to be regretted, as I before remarked, that we have not sufficient facts from sources, which are always existing, to authorise a certain solution of so important an inquiry.

NOTE TO PAGE 49.

"Plague at Marseilles."

Few subjects have been more contested, than the means by which the last plague was introduced into Marseilles. From an accurate examination, the most probable account seems as follows. A vessel arrived from Sydon with a clean bill, and there is every reason to believe the place was free from plague at the time of her departure. She stopped at Tripoly, where there is no account that the disease existed. Here the captain took on board some Turks as passengers. Two of these died in the course of a few days, and several sailors afterwards, as well as the surgeon. Three other sailors being sick, the captain applied for a surgeon at Leghorn, where the sick sailors died.

The captain brought a certificate from the surgeon and

and physician of that city, that these sailors died of a malignant pestilential fever.* If the ship fever was on board, nothing was more probable, than that the strangers would be first affected. The ship was, however, ordered to quarantine on its arrival at Marseilles. The mortality continued on board, and the quarantine officer died. This was about the 12th of June. The vessel had arrived on the 25th of May.

About the same time arrived three other vessels from the Levant, with suspicious bills of health, but without any mortality on board. In the infirmary where the goods of Chautaud's vessel were lodged, several porters died; but there was no proof of the plague till the 5th of July, when two porters were seized with sufficient tokens to ascertain the disease. In

* On this circumstance of Chataud's stopping at Leghorn, a considerable, and in my opinion, useless controversy has arisen. Dr. Pye says, if Chataud carried the plague to Marseilles, how should Leghorn escape, where there appears to have been no precaution nor suspicion? In answer to this, Dr. Russel says, "the ship had landed no goods there, nor had any intercourse with the shore, for the physician who visits the sick on board, remains at a distance from the ship in a boat, and the dead bodies are sunk in the sea." That this is the usual mode under any suspicion, there cannot be a doubt, but whether Chicoyneau's language implies as much, must be determined by those who are most intimately acquainted with the vernacular idiom of his country. Il ne sortit de sa retraite [dans la poupe] que pour relacher à Livourne. La necessité d'avoir un Chirurgien l'obligea à s'arreter dans cette ville. Trois de ses gens y tomberent malades, ils moururent de même que les autres. Le medecin & le Chirurgien des Infirmaries visiterent les cadavres, ils attribuerent la mort à dés fiévres malignes pestilentielles; dans leur certificats ils n'accusent d'autres causes que ces fiévres.—Traite de la Peste, 4to. Paris, 1744, p. 5.

Yet after all, this question is of little importance, unless it could be made appear, that instances of men dying of plague without injury to others were *not common*. Dr. Russel, with his usual candour, we have seen, gives several.

In the town the same suspicious cases existed from the 20th of June, but no marked tokens before the 9th of July. These were in a family at a distance from any supposed source of contagion; the only cause that could be surmised, was the possibility, that the sister, who was a taylor, might have been at work upon some infected Indian goods; and though her brother was seized first, yet this is accounted for by his being younger and more susceptible of contagion. The female taylor and her brother died, were buried at the infirmary, to which all the family was removed; and where they all perished. The house was closed.

On the following day a sailor from one of the other Levant ships was seized with the plague. A guard was placed on the house; he died the same evening; was buried in the infirmary, where the porters who conveyed him, and all the inhabitants of the house, were shut up. Those who had visited the deceased, were enjoined a certain quarantine at their own houses.

From this time the disease seemed to be conquered. The officers congratulated themselves on their prudence, and others denied that the plague had ever existed in the city. It was soon however discovered that the malady was extending itself slowly, and on the 18th, notice was given to the magistrates. On the 23d it was found that 14 persons had died. By the beginning of August, the disease had become so general, as to spread universal dismay.

In accounting for all these effects from contagion, where something more than the customary precautions were attended to, various causes were assigned. Among the rest, smuggled goods were suspected; and as smugglers usually live in the worst parts of the town, there is no wonder if they were the earliest sufferers.

sufferers. Such is a very short abstract of the account in the Relation Historique, published 1721, a year after the event.

Mr. Chicoyneau, who had every means of information, and published more than 20 years after, adds another cause. "The just severity of the council, says he, was superior to the representations of gain and ambition, the hull of the vessel was burnt with its whole cargo. Thus the source, or the suspicion of the evil was destroyed, but the town was full of fragments of the vessel."

"*Page 3, After a time those circumstances cease.*"

It should always be remembered, that whatever may have been the source of this dreadful calamity at Marseilles, it commenced at the usual plague season in that country, without any greater inattention than is usual at other times; that it began to abate on the 7th of October, and ceased about the end of November. Towards the end of October, surgeons and apothecaries, who had deserted the city during the pestilence, and for whose assistance 2000 livres per month had been offered, returned voluntarily, and the magistrates found it necessary to give notice that the reward was discontinued. That methods were used to *disinfect* the town is certain; but when we consider the magnitude and universality of the disease, can we attribute the sudden change to any other cause, than that change in the temperature, which is universally found successful under similar events?

"*Page 57, Who see only the exterior state of society.*"

It is a general, and too just remark, that all the evil which is going on in society, is not only brought before the public, but for the most part magnified. This does not entirely arise from any malicious wish for

for detraction, but a sort of consciousness of our own deficiencies seems to make us better contented with ourselves, as we contemplate the failings of others, just as the unhappy are sometimes taught to reflect, that their condition might be worse. For the same reason, the relation of magnificent actions, particularly where the scene is among our own rank, may be apt, whilst we cannot but admire them, to induce sentiments as if we felt ourselves lessened by them. Something of this kind must be the reason why the following history appears new in almost every company, in which I have heard it related.

Francis and Joseph, whose families were of the same county, contracted an early friendship for each other. Joseph, with whom only I am acquainted, was born in London, where for many years he carried on a small commercial concern. Francis was engaged on a much larger scale, and his success was proportionate to the magnitude of his undertakings, and the proverbial integrity with which they were conducted. In short, whilst Joseph was proceeding with a steady Pace, Francis seemed bearing down every difficulty that opposed him.

As they both retained their usefulness and prudence beyond the usual period of life; both might have been rich. Joseph, though always more intent on minuteness of accuracy than calculations of interest, might at least have retained, if he added nothing to his paternal property; but the perpetual calls on his benevolence effectually prevented either; and in the decline of life, he found it necessary to part with a reversion. His first application, we may suppose, was to his more successful friend; and with only the customary calculations concerning survivorships, 7000*l*, was settled between them as a fair consideration.

The

The friends both survived the life on which the contingency depended, and Francis felt no other sentiment but disappointment. It occurred to him, that his now aged friend, might have been in a situation to conduct himself with the same liberality as in his early years. It is true, the reversion being his own, might be disposed of as he pleased; but he feared it would not be an easy task to transfer it to Joseph. Yet he conceived there might be one means of forcing his friend to accept what he had parted with, and determined, at least, to make a trial. "Joseph, said he, the old lady is dead."—"Then I wish you joy of the reversion."—No, replied Francis, I have already more than I can manage. *You* have always been a faithful steward to the poor, and now it is your only occupation.—"You do not seriously expect, replied Joseph, that I should take back that, for which you paid me a fair consideration." "I do indeed said his friend, and if you judge as you ought, you cannot refuse it; and for the reason I have before suggested. *My* time is occupied with my business and my family; you have remained single and renounced business. It is not to you I offer the estate, but to your stewardship, sensible of your fidelity." To be short, in the end, Francis was made happy in the success of his negociation, thus to part with his estate, and Joseph was at his ease to pursue his only pleasures.

I cannot conclude this account, without repeating the description I heard of Joseph in the county in which he was well known. That man, said one, is so constitutionally benevolent, that should he see a piece of orange peel on one side of the way in Cheapside, he would cross to pick it up, lest any one should slip by stepping upon it.

NOTE TO CHAP. VII.

"*At Ackworth, p.* 66."

The following is Dr. Binns's account of the progress of scarlet fever at the Ackworth School, extracted from Dr. Willan, p. 380.

"This disease attacked the family when it did not exist in the neighbourhood of Ackworth, and yet, six months before, it came to our very doors without affecting any one in the house. It began in a boy from Sheffield, who had been with us a considerable time. Though not able to ascertain the point, I was led to suspect that he might have received from his friends some present imbued with contagion, having reason to believe the disorder was once introduced into a school, sixty miles from Liverpool, by a hamper of oranges sent from that town, when the disease was very prevalent there. It might probably come in another way from a distance, namely, by goods purchased, as flocks used for the childrens' bolsters, or curled hair for their mattrasses; but I have no sufficient ground for any of these suppositions: being, therefore, baffled in my attempts to trace it to any other place, I have been almost ready to conclude that it may have originated here, as it must have an origin somewhere;—but if so, I am entirely at a loss to say how it could be produced. Circumstances indeed seemed, at first sight, to warrant the conclusion, as two boys applied to me on account of this complaint, on the same day: I found, however, on inquiry, that the Sheffield boy was taken ill two days before the other, that he slept in the next bed, and that he had vomited very offensive matter between the

the beds: in this way, perhaps, infection was communicated to the second boy, for, on former occasions, I remember several cases in which the disease began two days after exposure to contagion. The above patients applied on the second of the fourth month, but no other till the twelfth of the same month, when two boys and one girl were attacked: these, I suppose, were infected by communication with persons who visited the sick, for some of the family could not be prevented from paying unnecessary, and, I think, very blameable visits.

"Our number of boys when the disease broke out was 179, of whom 104 were attacked in the course of four months; after that time only one was affected. Of the 105, five died. Many children having been sent home soon after the appearance of the disease, there remained in the school, at the end of the seventh month, only 126 boys. The number of girls, at the beginning of the fourth month, was 119. Between the twelfth of this, and the end of the fifth month, 48 girls were attacked, and but one afterward; so that the disease prevailed among the girls scarcely half the time it did among the boys. Of the 48 affected, two died; and since many of the girls also returned home soon after the complaint appeared, their number was, at the end of the eighth month, diminished to 90. I mention this reduction of our list, lest otherwise it might appear that we were more successful than we really were, in defending a great number from the contagion. Besides the children, who were in general between eight and fourteen years of age, a few others of the family were affected with the disease.—The following is a statement of the whole.

"Boys

	Affected with the disease	Died.
Boys	105	Of whom 5
Girls	49	2
Masters, apprentices, and servant-men	8	0
Mistresses, servant-women, and apprenticed girls	9	0
	171	7 nearly 1 in 24.

"About thirty other children were affected, but too slightly to be included in the sick list: however, it may be observed, that in the list of 171, there was almost every gradation of the disease; I could not therefore draw the line of distinction with much exactness.

"In regard to prevention, I think that an improvement of the diet in such as live low, moderate exercise in the open air, cold bathing, in short every mode of strengthening the constitution, with great attention to cleanliness and ventilation, must have a tendency both to ward off the disease, and to support through it those on whom the contagion has fastened.—They who are in attendance ought as much as possible to avoid taking the breath of the sick, since it is clear that the Scarlatina, and very probable that some other diseases are so received. When children in a school are affected with symptoms of fever, they should be immediately separated from the rest, till the nature of the fever be fully ascertained: this precaution having been taken, I believe several children at Ackworth, though really attacked by the scarlatina, were, through the early application of suitable means, presently restored to health. But when these attempts

attempts did not succeed, the patients were sent to a fever-house at the bottom of the garden, more than two hundred yards from the grounds frequented by the children. This house consisted of a chamber for the sick girls, and another for the boys, with answerable convalescent rooms on the ground-floor, and a bed-room for the nurses, besides a few other small apartments, all, by a little contrivance, sufficiently ventilated. Those whose complaints did not require them to be strictly confined, might walk behind the house, where there is a grass plot: but when the fever and sloughs in the throat were wholly removed, the patients stayed a few days in the convalescent rooms, and had an opportunity of walking in the garden, at the front of the house, to clear themselves from infection by repeated exposure to the open air. After this they went across the garden to a wash-house, about equally distant from the fever-house and the school, where they were entirely stripped, and washed with soft soap, particular attention being paid to cleansing their hair. They then put on fresh cloathing and went up to the rooms in the school, being, however, kept apart for some time longer. Their bed and body linen was frequently changed on their return, as it before had been in the sick-rooms. When they had continued thus about a week, and appeared to have recovered their strength, the general ablution was repeated; and after rambling in the fields for some hours, they were permitted to mix with the other children.

"As soon as the weather would permit, cold-bathing was entered on by the boys who were in health: they began with it sooner than the girls, and used it more frequently, yet it appears by the proportion of boys affected, that they were more susceptible of the disease

ease than the girls, which seems to militate against the opinion before given; however, the influence of other causes should be taken into account.

"Fumigations were used, with an unsparing hand, both in the sick and the convalescent's houses, also in the lodging-rooms of the children who were well, every evening after they retired to rest. Our usual mode of fumigation was by pouring vitriolic acid on marine salt, to which manganese was added on the recommendation of Dr. Walker, who, at my request, came over several times from Leeds to visit the sick, and to whose assistance I attribute a considerable share of the success in our management of this dreadful disease. This plan of fumigation, after a long trial, appearing insufficient to destroy the contagion, the manganese was omitted, as it tends to oxygenate the muriatic acid, by which effect, in the opinion of Chaptal, it's acid virtues become weaker, since it's affinities with alcalies diminish, and it is so far from reddening blue vegetable colours that it destroys them. Elem. of Chem. Vol. I. p. 246. We afterwards used only the salt and acid, as recommended by Dr. Johnstone, but with no more apparent advantage than before. The vapour raised by Dr. C. Smyth's mode of fumigation, proved so unpleasant to my lungs, that I was soon obliged to lay it aside.

"Vinegar was employed very freely in sprinkling the floors, and even the bed-clothes: the patients likewise were very frequently washed, during the hot stages of the disease, with cold vinegar, or vinegar and water, or vinegar and brandy, by means of sponges, or linen cloths, not only on their faces and extremities, but occasionally over the whole body; and they, in general, experienced much relief from it.

"Though

"Though the season was usually very cool, a system of ventilation was carried on, night and day, much beyond what can be done in almost any private family. The rooms were also frequently washed, sometimes even while the sick were in them; nor do I know of any case in which this practice was attended with the smallest injury.

"Gargling night and morning, as recommended to us by Dr. Lettsom, was not used by those who were well till the disease appeared on the decline: it must no doubt be serviceable as a preventive, but, notwithstanding it was long regularly practised by the children, it did not prevent returns of the Sore-throat with feverish symptoms.

"Not finding that the means above-mentioned are to be wholly depended upon, I would recommend, in large schools, that the communication be cut off between the sick, their attendants, or visitors, and the rest of the family. This I found could not be carried into effect, though the house for the sick was 250 yards from the school, while provisions, &c. were sent from it to the sick; I therefore proposed, when the disease broke out, to send away those at the time uninfected, as far as practicable; but this was not done till a very late period, some persons, who were consulted, thinking the first precaution would be sufficient."

The same physician, (Dr. Binns) remarks, that the influenza did not attack a single individual of the family.—Mem. Med. Society, Vol. v. p. 351.

It is very true, as Dr. Willan observes, that at the school of which Dr. Blackburne gives an account, the contagion was more easily arrested, yet the probability is, that the means made use of, as well as the habitual ventilation, were much greater at Ackworth. Indeed,

Indeed, Dr. Bims remarks, "there are few similar institutions in the island, in which the air is more freely admitted than in this." It would be a desirable thing to learn how the school mentioned by Dr. Blackburne, fared during the influenza, which we have seen, spreads in proportion as ventilation is less attended to.

However, the following history of the progress of typhus fever, scarlet fever, and influenza, in the same establishment, afford a sufficient illustration of the doctrines already maintained.

At a highly respectable academy, consisting of 100 young gentlemen, typhus fever made its appearance in Sept. 1793. At that time, it was common in many parts of England, particularly in schools. About half the number of scholars were infected, but none of the family, either in the school-house, the lodging-houses in the town, or at a distance from the town whither many of the patients were removed.

The scarlet fever appeared in the same seminary in 1802. As the patients were removed to the sick-house, only eight had it. Those who remained in the school were free from it; "but, says the gentleman who favours me with the relation, almost all, I think I may say all who went home, about 15 in number, had it, and in some instances communicated it."

The above gentleman imputes the security of such of his scholars as remained, to the careful fumigations with nitrous acid. But we have seen how insufficient this and every other precaution were at Ackworth.

My informer adds, that influenza, when it occurred, spread without any respect to age, but usually so slight, "that we have not always removed the patient to the sick-house."

That this gentleman considered his academy as crowded is evident, for in consequence of the occurrences

rences above mentioned, he lessened the number of his scholars one half.

Here we have most fortunately a history from a scientific character, unshackled by medical theories, of three epidemics under his immediate observation. In each the laws were preserved, which I have endeavoured to trace. Typhus, as it is called, spread only in its original source, but was not transplanted. Influenza was general, and in a few instances severe. Scarlet fever, like the other contagions, was easily arrested in circumstances under which typhus fever and influenza spread. Patients conveyed to a distance, communicated scarlet fever, but not typhus fever.—Lastly, those who remained in the air to which they were accustomed, escaped the effects of the contagion; whilst those who were removed to a purer air, were seized with the disease from which they had fled.

There is something so remarkable in this coincidence of events with the laws I have endeavoured to establish, that I cannot help adding, if any reader wishes to be informed of the seminary in which they occurred, I am permitted to inform him.

It is worth remarking in this place, that the ague has been particularly prevalent during the last autumn in some of the fenny counties: in others, continued fever of a very unfavourable type, particularly to strangers. Some of the latter have been seized with ague several months after leaving the seat of it. At this time ague is more common in London than usual. In many of these cases, I suspect the disposition to the disease has been contracted during an autumnal residence in the country.

NOTE TO CHAP. VIII.

" *Page* 80. *They were encouraged by the faculty in supposing the small-pox unavoidable.*"

The opinion that the small-pox would necessarily occur to every one once during life, is as old as the Arabian physicians. Those who wish to learn the theories of the earliest writers, may find them collected by Diemerbroeck from Avicenna to Willis. I shall content myself with citing the last.

It is evident that Sydenham, who seems to have fallen into the same error, had been warped by these writers in his theories of fermentation and dispumation.

Willis's words are "—convenit enim homini, *omni, soli, et semel* variolis, aut morbills, affici: si forte quispiam in tota vita immunis degerit, aut alius in hos affectus sæpius inciderit, sunt hæc rara et inusitata naturæ eventa, quæ communi observationi minime derogant: quin omnino rarum sit, quod nimirum *cuncti et soli* homines sint variolis et morbillis obnoxii, atque *unica plaga* iis absolvi soleant."

He afterwards assigns as the cause of this universal prædisposition to the disease, certain impurities of the blood, *inter prima fœtus rudimenta in utero concepta;* quæ [particulæ] diu delitescunt; postea a *causa evidenti* commotæ, cum sanguine fermentescunt; ipsique *ebullitionem* ac deinde *coagulationem* inducunt; è quibus plurima hujus morbi symptomata oriuntur."

" *Causa evidens,* quæ hæc semina fermentativa commovet, et sæpissime in actum deducit, triplex assignatur; scilicet *contagium* aliunde susceptum, *dispositio aëris,* ac immodica *sanguinis et humorum perturbatio.*"

Gentilis and Mercurilialis differed from this opinion of

of the cause of impurities, but still consider small-pox as morbum hæreditarium atque hinc nullum fere hominem ab iis immunem esse potest quid omnes nascuntur ex parentibus hoc vitio contaminatis.

Fernelius derives the disease à causa quadam cœlesti et occulta cui cum infantes et pueri minus resistant quam adulti, hinc fieri quod illi frequentiores variolis laborent quam hi.

Sennertus differs from these last writers without assigning any better cause than the humidity of spring and autumn with vitiated particles of the blood.

Diemerbroeck shows the folly of this notion of impurities, by inquiring how any person could escape from such an effect, when all must be subjected to the cause. He instances a great number of his relations who had lived to a very advanced age, without suffering the disease; and, lastly, himself, who, on the verge of 70, after attending thousands without any caution, had escaped. But this would rather make in favour of Willis's Theory, who expressly says, that if perchance an individual should escape during life, or another should fall into the disease more than once, such uncommon events do not invalidate a general law of Nature. Now it is plain that Diemerbroeck did not ascribe his security to a want of exposure, it could therefore only be accounted for by that peculiarity of constitution which Willis has remarked, as not inconsistent with his theory. This want of susceptibility of small-pox is, I am persuaded, much more rare than is generally suspected. Among the infants inoculated at the hospital, the number is too small to ascribe to any other cause than some temporary affection, which occupies the constitution at the time. Among adults the number is greater, and here we generally find that the subject has remained with his brothers

brothers and sisters or playmates, whilst under small-pox. Under these circumstances, it is probable, an accidental inoculation has taken place, and the disease has passed off so mildly, that the attention to the greater sufferers has absorbed the whole anxiety of the family. But I seem to have forgotten that my only intention was to show how much the opinion of the necessary universality of the disease was encouraged by the profession. Diemerbroeck, we may see, though he discourages the opinion, does not consider exposure to the contagion, as necessary to induce the disease. It however does him credit that he professes himself unable to assign any cause whatever. "Quis enim, he concludes, tantæ rei se veram et perceptibilem rationem daturum promittet? Hæc quippe sunt ex illis arcanis quorum causas nos exacte scire noluit altissimus conditor."—Diemerbroeck de Variolis, p. 275. I do not recollect any writer, before the introduction of inoculation, who proposes any means of escape, which human prudence can advise in a populous town.

NOTE TO CHAP. IX.

"*Page* 88. *Dr. Haygarth's correspondence.*"

The syndic and council of Geneva give a description of their city, and of the small-pox inoculation, quite conformable to each other. "The city is of small extent compared with its population, yet it is difficult to enlarge it, on account of the fortifications. It consists of 1200 houses, containing nearly twenty-one persons to a house. That the small-pox is usually epidemic every five years, and that in that interval they have frequently no natural small-pox in the city or its vicinity, though inoculation is constantly going on; that they sometimes had occasion to send to a distance

distance for small-pox matter, when none was to be had in the city; yet the children inoculated resorted in every stage of the disease to the street and public walks, without ever being observed to spread the contagion." A town fortified, walled, and so closely inhabited, even when free from any epidemic disease, must be surrounded by an atmosphere impregnated with exhalations, which may greatly impede the spreading of a contagion. This, in the old state of London, we have already remarked, led Sydenham into an error in confounding small-pox with those epidemics which arise from the constitution of the atmosphere, unconnected with contagion.

In this place, I cannot help noticing a controversy between Baron Dimsdale and Dr. Watkinson, in which each seems to contradict the other; yet, considering the laws of epidemics, and the scene of practice with each, there is no reason to doubt the veracity of either. Dr. Watkinson says, he inoculated some young subjects *among the poor*, and that the contagion did not spread in the neighbourhood, though there were many still liable to the disease. Baron Dimsdale informs us, that from one of Dr. Watkinson's patients, he inoculated the child of *a gentleman*, and that the disease was communicated *to the footman*. This is in perfect conformity with the general law that the contagion, when not generally epidemic, should be more active in proportion as the atmosphere is more pure. But to return to Dr. Haygarth.

His correspondence with America, shows in a striking manner the greater susceptibility of the human constitution to this contagion, in proportion as it has been little accustomed to its impression. It is also well known, that the new continent is only by slow degrees opposing the causes of those epidemics which

which occur at the different seasons with great severity in countries not sufficiently cleared, and in towns so suddenly constructed as to be ill drained or ill supplied with water. If small-pox was introduced during the prevalence of any other epidemic, the influence of the latter on the human constitution may be sufficient to prevent the extension of the former. But if the town, and even the neighbouring country should be free from any other epidemic, and the human constitution for a long time free from small-pox contagion, a very slight impression would be sufficient to introduce and spread it.

It appears difficult, if not impossible, to account for some facts related by Dr. Waterhouse, but by the gradual increase of Boston and its neighbourhood in population and commerce, and its consequent lessened susceptibility of the small-pox impression, by being more accustomed to it. Thus at some period before the revolution, a Governor arrived in Boston, one of whose servants died of small-pox during the voyage. The Governor submitted in common with every other passenger to a requisite quarantine, and all the bedding of the deceased was burned, yet the disease spread as was supposed by the smoke from the combustion. At another time the burning of papers which enfolded lemons brought in an infected vessel, spread the disease in the same way. So little were the inhabitants in some parts of America accustomed to small-pox, that when it broke out in their army during the revolutionary war, 29 practitioners of medicine were inoculated in a few weeks, by Dr. Rand alone. At these times the small-pox might be kept off for a considerable time, and their quarantines and other restrictions might be useful; but as commerce and population have increased, their only rule before the discovery

covery of vaccination, was to encourage inoculation as often as the disease appeared among them. Dr. Waterhouse, who formerly thought burning insufficient, now conceives that burying any substance in the earth, is an effectual means of destroying its contagion, and that 48 hours is sufficient: yet we have unquestionable authority that the remains of a corpse after ten years interment, proved contagious at Berkeley.

I cannot help again noticing the candour of Dr. Waterhouse; May we not, says he, both be right? May not the small-pox operate differently in the two countries? "Have we not found that small-pox rages with more violence among some nations than others? It has certainly almost exterminated the aboriginals near the sea coast, though they have the advantage from their mode of life, and fresh air, and *no doctors*." [Consequently no inoculators.]

APPENDIX.

APPENDIX.

No. 1.

THE only plausible argument that remains against permitting small-pox inoculation in the metropolis, is, that the number of deaths by that disease has increased since the practice was introduced. Even if this were true, we have shown that the increase has been much more considerable in the other contagions; and Dr. Heberden remarks, that the number of sudden deaths have doubled during the last century. It will easily be seen, that if more children are reared, which the same authority admits; and if fewer die of the diseases of poverty, more must be exposed to those causes of fatality from which no improvement in life can secure us, or which, like apoplexy, are more common in the advanced stages of life. From this we might expect that the number of victims to small-pox would have been in a ratio equal to its greater fatality above the measles; and such would probably have been the case had not inoculation been introduced. Those who estimate the probable number of deaths from small-pox, by the probable number who may be exposed to the disease, must be erroneous as far as relates to the metropolis, where all are exposed, and, if we may believe Sydenham, all are infected during an epidemic. The only calculation we can make, is by estimating the number residing in the metropolis, that are susceptible of the disease. In this manner we find Dr. Willan accounting for the progress of the disease in the years 1796, 1797, and 1798. During the first of these years, happened the severest epidemic

mic small-pox recorded since 1757. During the second, the number was reduced to 522, which is fewer than at any period since, and for several years before; during the third, the numbers were again high. On this occasion, that accurate writer remarks, "The new subjects for this increased mortality must have been produced by the births within the two years, and by the influx of adult persons from the country, who never had the small-pox, to the amount of several hundreds every year."

This last circumstance would be sufficient to account for the increase of deaths by small-pox since inoculation, had such really taken place; because since the rich have lost their terrors by inoculation, they have been too inattentive in receiving domestics who have not passed through the disease. There appears also an inaccuracy. The estimate has usually been made by *the proportion of deaths from all diseases*, without sufficiently reflecting that the numbers who formerly died in early infancy, swelled the totals of burials, without adding to the real population. Dr. Heberden, willing to view the question in every light, has given what he calls a coarse statement from an average of about ten years, at the beginning, middle, and end of the 18th century, selecting such years in which the whole number of deaths was nearly the same, viz. about 21,000. By this mode of calculating, he finds the increased mortality by small-pox, to be from 1600 in the beginning to 2,000 in the middle and end of the century. This mode is objectionable, because certain years of particular epidemics may produce extraordinary mortality, and may supersede small-pox as an epidemic. Hence, in the succeeding years, a greater number will remain susceptible of small-pox, yet the general mortality may

be less. Thus the decad from 41 to 50 inclusive, was the most fatal in fever, yet the number of deaths by small-pox was particularly low. It appears, therefore, that to make a fair statement where we cannot suppose the population lessened, we ought to take the whole numbers as they are, without regarding the greater or less mortality of particular years, excepting what are called the plague years, none of which happily have occurred during the last century. In distributing the century into three parts, I shall for convenience, select the last 90 years, being more easily divided into three thirties. The first decad is omitted, not only on account of the order which it enables us to maintain, but because the mortality by fevers as well as small-pox and measles was so low, for that early period, as can only be accounted for by a less population.

According to the proposed division, then, we shall find that there died of small pox in the thirty years,

From 1711 to 1740 inclusive	-	65383
From 1741 to 1770 ditto	-	63308
From 1771 to 1800 ditto	-	57268 ;

making the number of deaths by small-pox greater in the first thirty years by 2075, than in the second thirty years, during which inoculation had acquired some stability, and greater by 8115 than in the last thirty years, during which inoculation was the established practice of most prudent families.

At the same time, the mortality by measles has taken a quite different course, the number of deaths in the second period of the same ninety years being greater than in the first by 1781, and the number in the last thirty years exceeding the first by 2018.

By taking the estimate of these two diseases, we save the necessity of any estimate concerning an increased population, which is very uncertain. For how

how much soever the population of the town may have increased, we are not able to ascertain how much of this increase is confined to Mary-le-bone and Pancras, which are not included in the bills, nor whether the depopulation by the improvement of London, within the walls, may not equal the increase of the other parishes included within the bills.

Imperfect as these bills are, whilst we have no other records, it is justifiable to refer to them, and, as Dr. Heberden remarks, taken on a large scale, they are not likely to deceive us much. But it is truly painful to see men, whose intentions are honest, led astray by the artful quotation of single years. In 1804, we are told that vaccination had so far reduced the number of deaths by small-pox, that they amounted to only 622. It might easily be answered, that in 1797, they amounted to only 522. What was the cause of each? That there were fewer inhabitants in London susceptible of the disease in 97, in consequence of a previous epidemic; and in 1804, in consequence of the zeal for vaccination. All this is highly in favour of vaccination, but makes nothing towards the extermination of small-pox, which can only be kept under by inoculation or vaccination.

In the year 1805, it is added by these honest zealots, the number of deaths by small-pox increased from 622 to 1685, in consequence of the difficulties thrown in the way of vaccination. But it is notorious that those difficulties increased during the years 1806, 7, and 8, yet the average number of deaths in those three years has been only 1280, which is less than in any three successive years that can be produced within the last ninety years of the preceding century, or than any single year, not preceded or followed by an epidemic small-pox. During the two first and part of the

the last of these years, small-pox inoculation increased to such a degree, as to alarm many well intentioned people. Yet part of the previous exemption might be imputed to inoculation, as the deaths by small-pox have increased since that practice was discontinued at the hospital. At the same time, I conceive vaccination has had a very great share in decreasing the deaths by small-pox; not so much by what has been done in London, but because during the early zeal in the country, so many were vaccinated who, by this time, have resorted to the metropolis, and if they had not been prevailed on to vaccinate, would probably have arrived susceptible of small-pox.

Though the bills of mortality, especially for so short a period, cannot be considered sufficient evidence, yet as they have often been referred to on the subject, it may be right to show, that hitherto there is at least no reason to suppose the casual disease was increased by the inoculation of out-patients.

The order for discontinuing that practice was made towards the end of April, and enforced in the beginning of May. From that time the number of deaths by small-pox, according to the bills of mortality, has gradually increased each succeeding month, so that the average for April and May was 42 ½ each, for October and November 141 ½ each.

The following is the report of the Small-pox Hospital, delivered in December last.

	Inn Patients.			Out Patients.		
	Small-Pox	Inoculated	Vaccinated	Vaccinated	Inoculated	Death by the Small-pox as reported by the Bills of Mortality.
January.	7	21		32	67	174
February.	9	19		40	96	102
March.	9	29		101	190	89
April.	4	36		113	484	46
May.	4	25		214	196*	39
June.	15	16	1	117		51
July.	14	10	2	53		62
August.	3	10		105		78
September.	6	20		156		103
October.	10	23	3	159		96
November	24	29		114		167

No. 2.

Correspondence between Dr. HERVEY, Register of the Royal College of Physicians; and Dr. ADAMS, Physician to the Small-pox and Inoculation Hospitals.

Copy of a printed Letter from Dr. Hervey to Dr. Adams, Physician to the Small-pox Hospital.

SIR,

HIS Majesty has been graciously pleased, in compliance with an address from the Honourable House of Commons, to direct his Royal College of Physicians of London to inquire into the present state of vaccination in the united kingdoms, to report their observations and opinions upon that practice

* To the 5th day of this month.

tice, upon the evidence adduced in its support, and upon the causes which have hitherto retarded its general adoption.

The College are now engaged in the investigation of these several propositions, and request you to communicate to them the result of your experience and inquiries on the subject, that they may be thereby assisted in making their report as perfect as possible.

I am, Sir,
Your most obedient Servant,
JAMES HERVEY,
Register.

By order of the Royal College of Physicians, Oct. 23, 1806.

Copy of a Letter from Dr. ADAMS *to Dr.* HERVEY.

Berners-street, 17th of November, 1806.

SIR,

I have been honoured with your circular, expressing the wish of the Royal College of Physicians to comply with his Majesty's gracious command, relative to cow-pox.

The College are pleased to expect a communication on the three following points:

1st, My own experience in vaccination.

2dly, The result of my inquiries.

3dly, My opinion of the causes which have hitherto prevented its general adoption.

1st, My own experience fully confirms all that *Dr. Jenner* promised in his Inquiry into the Causes and Effects of Cow-pox.

2dly, I have made no digest of my inquiries, excepting

cepting as they lead to experiment, which are consequently included in the former answer.

3dly, Besides the prudent backwardness of most in admitting novelties into practice without ample proof of their utility, the causes which have prevented the general adoption of vaccination appear to me to have been principally the mistaken zeal of its friends. It could not be expected that men who value themselves on their talents at investigation, and feel conscious of their scrupulous adherence to truth, could patiently submit to be uncandidly treated for a scepticism induced by events however accidental. When their accuracy was questioned, whilst they disregarded the assertions of their accusers, they became diligent in collecting collateral evidence, and when their reasoning was rediculed, instead of expressing only their doubts, they became parties in their own defence.

Another inconvenience has arisen from a too great forwardness at answering objections before they were sufficiently matured; hence when variola appeared after vaccination, the event was either denied, or explained by so many minute causes as were sufficient to frighten the ignorant, disgust the candid, and induce the prudent to avoid an experiment, the result of which was not sufficiently understood.

A practice at one time represented as so simple that the clergy and females were invited to undertake it, became at once so mysterious, that only a chosen few were said to *understand* Vaccination; every untoward event was imputed to ignorance between the true and spurious pustule, to taking matter at too late a period, and to other causes still less satisfactory.

Had these uncertainties really existed, they would have been sufficient objections against a practice, the object of which is to secure the subject from a formidable

able disease, and from which he might be secured by another, certainly less desirable, but well-ascertained operation. But the truth is, that Vaccination is as simple as it was at first announced; that the true character of its vesicle is more certain than the local effect of any other morbid poison; that it is impossible to confound it with a pustule of any kind; and that every difficulty might have been avoided by requiring a correct register of the progress from the period of insertion to cicatrization, or for the most part of perfect scabbing.

I am, Sir,
Your obedient
Humble Servant,
JOSEPH ADAMS.

To Dr. James Hervey, &c. &c.

To Dr. ADAMS.

SIR,

THE committee of the Royal College, appointed to inquire into vaccination, request you to favour them with the evidence which the registers of the Small-Pox Hospital afford upon that subject, and that you will address your communication to me at the College.

I am, Sir,
Your most obedient
Humble Servant,
JAMES HERVEY.

In answer to the above, it was stated that from the 21st of January, 1799, to the 1st of January, 1807, 20,323 had been vaccinated, 17 of whom had since taken small-pox, of which one died. That neither sore

sore arms nor subsequent eruptions had occurred sufficiently important to give uneasiness, or to interrupt the practice. Since the above account was delivered, 20 more cases of small-pox have occurred in those vaccinated at the hospital, one of whom died. Twelve have applied for relief under small-pox, having been vaccinated at different places; eight of these proved distinct and mild cases, four were confluent, but none proved fatal. In one, the progress of vaccination, and the appearance of the cicatrix were doubtful, but the patient had been often exposed to small-pox after vaccination, and escaped for about five years.

No. 3.

HAVING, in common with every other writer who has consulted the bills of mortality, frequently regretted their inaccuracy, it may be expected that some mode of improving them should be suggested.

First, relative to the christenings:—Many classes of Christians do not baptize at all, others not till riper years. Most of these are in that rank of life, which renders a register of their childrens' birth of some importance, and on that account, a register has been established at the Library in Red-cross Street. The Quakers, I believe, register at their meetings; and the Jews at their synagogues. If these are sufficiently accurate, it may be unneccessary to interfere with them; but for the sake of uniformity, it may be better to make an universal register for the metropolis, on one general plan.

No other occurs to me at present, but a registration of midwives of both sexes, who shall receive an annual stipend from their respective parishes, and be

bound under a heavy penalty, if they omit to register every child, at whose birth they are present. This register shall be kept by the minister of the parish, or such persons as shall be appointed by him, whose residence shall be contrived for the convenience of the parish, if extensive.

This must be considered only a general outline, to be filled up by others, better acquainted with the subject.

The diseases and deaths come more immediately within the inquiry of the physician. These, I think, might be registered by licencing undertakers, who should be bound in a heavy penalty, not to interr a corpse without a certificate from a medical man, of the disease, age, and former residence of the deceased. Where no medical man is consulted, a certificate should be produced, signed by some individual in the neighbourhood, who shall be appointed to make inquiries after receiving the information from the undertaker. A fee or salary may be annexed to this office. On a certain day in every week, these certificates should be brought by the undertaker, or his accredited servant, to the minister of the parish; and on the third day of every month, the whole should be printed in the present form, excepting that the epidemics should have a division by themselves, as was the practice for the plague, when the town was accustomed to its returns.

The five following should be constantly marked, fever, scarlet fever, small-pox, measles, and hooping-cough: dysentery and ague should be added, whenever there are found more than a certain number in any one district: and if the mortality from either of the other five epidemics is considerable, notice should be given every week of its progress. A fatal case from small-pox inoculation, or vaccination, should be distinguished.

As every new plan is subject to many inconveniences, which can only be discovered by trial, it may be recommended, that the first experiment should be made in those two extensive parishes which are not included within the present bills, Mary-le-bone and Pancras, particularly the first, which has been long celebrated for its correct parochial administration. In these no old customs would be interfered with, as, at present, they publish no weekly bills. The order with which every thing has for a series of years been conducted in Mary-le-bone, would render the execution of some such plan more easy, and also its improvement till it should be brought to such facility, as may enable the other parishes to fall into it without difficulty or confusion.

No. 4.

AFTER the frequent notice how much the extermination of infectious atmosphere depends on the meliorated condition of the labouring class, I cannot conclude without offering the following hints to the better judgment of others.

The present-benefit clubs among the labouring class, seem to have arisen from a conscious incapacity in the character of our countrymen to take the charge of their own money. Hence the necessity of forming a fund which they can only touch under sickness. The same feeling cannot but extend to the period of old age, or even to the uncertainty of employment. This spirit, which ought most of all to be fostered, has been the most abused. Flattering schemes of improving their little capitals beyond what can be fairly accomplished, are perpetually held out to them, and sometimes end in the loss of the whole.

Th:

The only plan that can be permanently useful must be completely within their comprehension, liable to no uncertainties, and by always keeping within their view the true value of money, induce economy in the management and diligence in the acquisition of it.

May not a Bank be established, ready to receive the smallest weekly contributions of such individuals, recommended by others, who shall be presently described. Every half year the balance should be struck, and interest for six months added to the creditor's side for the lowest balance which has ever appeared in the account during that period. That is, if a person has paid at first five pounds, and afterwards various sums, but has never drawn out more than those last sums, his lowest balance will be five pounds, and for that he shall have an interest of two shillings and six-pence added at the end of the six months, and a fair balance shall be struck, to show the full sum rémaining in his name. If this sum is not diminished in the course of the succeeding six months, an interest of 2 ½ per cent per six months shall be added to the balance, whatever it may have been at the beginning of that half year. The same to be continued every succeeding six months.

Each individual must have a banker's book, to which must be attached some check or indenture, understood by the clerk and himself, and another understood by the clerk only. He should see the balance struck every six months, and sign it if he is capable.

In order to secure this compound interest, the balance in the office (reserving only a certain sum for contingencies) should be paid every morning into the Bank of England, who should appropriate an office

fice for that purpose. As they would always have a balance, they should allow every week an interest on the lowest balance from the beginning of that week, which should be added to the balance of the current week, and thus the compound interest be calculated from week to week. As a further means of supporting such an establishment, 100 gentlemen of property, principally proprietors of large manufactories, should be invited to deposit one thousand pounds each; half of which they shall be at liberty to draw in any sums they may think proper, but never to leave a smaller balance than five hundred pounds. If they wish to withdraw the whole, they will be expected, but not required, to furnish the Bank with another *customer* on the same terms.

That the *smaller customers* may be sensible of the advantage they derive from the establishment, without at the same time seeming to forfeit their independence, they shall be required to produce an introduction from one of the *larger customers*, before they are permitted to lodge their smaller sums weekly.

It is presumed that the weekly compound interest paid on these joint sums by the Bank of England, will be sufficient to defray the expences of this new Bank, as well as the half yearly compound interest to the smaller customers.

The Bank of England it is true, will derive little or no profit, and a certain expence. But besides the gratification the governors and proprietors will derive from the services they are rendering the labouring class of society, in my opinion, that grand establishment will derive ample advantage from the general interest all the Londoners will feel in supporting, or at least in submitting to their charter. It is not probable the Bank should ever feel any other danger than this

this jealousy; but should such a moment occur, no better security can be desired than the interest which would be felt by so numerous a body as the class of citizens, which compose their new customers. The loss, however, cannot be considerable to a company who are making *hourly* a compound interest.

The bankers books kept by the *smaller customers*, should have prefixed to them a few aphorisms like the following, "The benefit arising from compound interest, on sums however small, is greater than can be calculated beyond a certain number of years. The late learned Dr. Price discovered that a penny put out to compound interest at the birth of our Saviour, would at this time produce a sum equal to the worth of several globes of gold of the dimensions of the world we inhabit.

"The calculation of money at simple interest is, that it doubles itself in 20 years; at compound interest, in 14 years and $\frac{1}{2}$, that is, when the interest is only added to the capital once a year. If added every half year, the period of doubling must be still earlier.

"When money doubles itself, the interest must equal the principal: therefore five pounds paid regularly every year, and receiving compound interest, will at the end of 14 years and $\frac{1}{2}$, produce one hundred pounds. If the compound interest is added every half year, it will produce that sum earlier. Now five pounds a year is only two shillings a week, allowing two weeks deduction for Christmas.

"Threepence a week from the birth of a child to its years of apprenticeship, will produce more than thirteen pounds, which if it is not an apprentice fee, may at least serve to clothe a son, so as to make him appear respectable among his fellow apprentices or workmen; a shilling a week will in 14 years and $\frac{1}{2}$, produce

produce fifty-two pounds, which if not employed in the mean while in the purchase of good tools or materials, may be reserved for a proper opportunity, and in a few years more assist a prudent son in law in beginning life.

"Many work people are employed only one half of the year; whatever they save during that period, may be *working for them* by producing interest. Whatever they are able to leave at the end of the dull half year, will be a certain productive stock gaining interest, whilst more is added during the busy season".

These are only the outlines of a plan, which is not to be considered as entirely crude in the author's mind; but the subject cannot be matured without the assistance of others, accustomed to calculations and commercial transactions.

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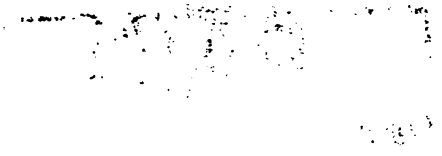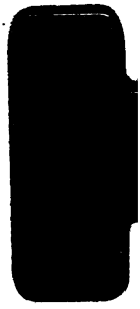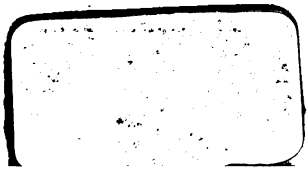
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